

# COMMERCIAL CAR JOURNAL

with which is combined Operation & Maintenance

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JUNE, 1938



# CCJ QUIZ

HERE is No. 3 in the CCJ Quiz series. And before you start working on it, let us remind you again that we are anxious to have readers send in Quiz Questions. For each individual question accepted we will pay \$1. Five questions rate \$5 and 10 questions bring \$10. Why not try your hand at stumping fellow-readers?

Now get your pencil ready. Check the answer you believe is correct. In scoring give yourself 10 points for each question answered correctly. A score of 60 rates fair this month.

If you score 100 points let us know so that we can list your name in our Hundred Club.

Correct answers on page 46

1. If a peddler whose face you could not place stuck his head in your office door and said, "The neutralization number in your truck is too high", you would

*reduce the generator charging rate*  
*wash the trucks with a detergent*  
*change the crankcase oil*

2. If a truck is traveling 50 m.p.h., a point on the circumference of one of its tires at the moment of contact with the road is traveling:

80 m.p.h.                      40 m.p.h.  
motionless                      20 m.p.h.

3. If the shop foreman was a literal sort of gent and he told you to take "just a hair" off to make some part fit, you would remove:

.005 to .010 in.              .001 to .003 in.  
.012 to .020 in.              .040 to .050 in.

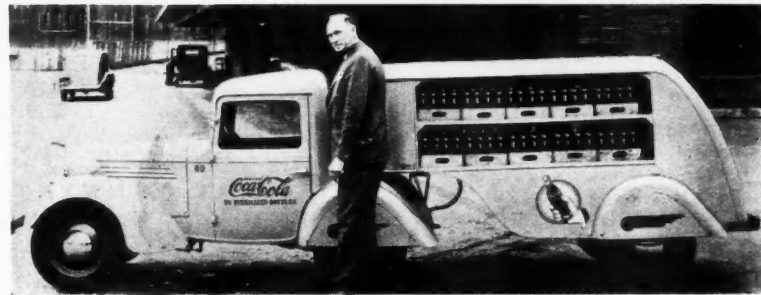
4. If you had to make out your traveling budget for the balance of the year and you wanted to see the boys and trucks at the National Motor Truck Show you would list a trip to:

New York      Boston      Detroit  
Newark      Atlanta      Chicago

5. When you start out to buy a truck (either cash or time) you have quite a few standard models listed to pick from. To look them all over you would have to consider at least

158 models                      1101 models  
451 models                      653 models

6. If the circus came to town and one of the average-size elephants be-



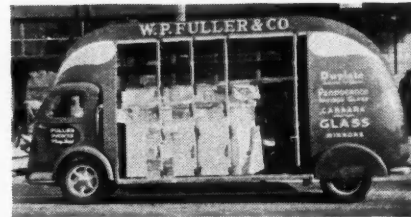
Hauling "cokes" to town with considerable sales appeal thrown in is the purpose of the Bantam tractor-trailer outfit. Capacity (count yourself): 20 cases

## THE OVER LOAD

Editor's Note—So many photographs of distinctive truck installations reached us this month that we give you a pictorial Overload—above, below and overleaf



Almost a solarium on wheels is this General Body creation for Mangel Florists in Chicago. Its extra big doors and windows use Hansen fittings. Chassis is by White



The c.o.e. International provides room between axles for huge panes of glass, only 16 in. from the ground. The rear body section houses cushioned seats for workmen

came lame and had to be hauled to the railroad station and you got the job, you would back up a truck capable of carrying

1800 lb.                      3 tons  
5 tons                      10 tons

7. If you wanted to impress your mechanics with your knowledge of the diesel engine you would tell them that for fuel in his first compression ignition engine Herr Diesel used

coal                      wood                      alcohol  
gasoline                      straw                      fuel oil

8. If two trucks 50 miles apart start towards each other, one at 25 m.p.h. and the other at 35 m.p.h. and a bee on the radiator cap of one truck flies to the radiator cap of the other truck at a constant speed of 20 m.p.h. and

returns continuing until the trucks meet, how fast does the bee fly?

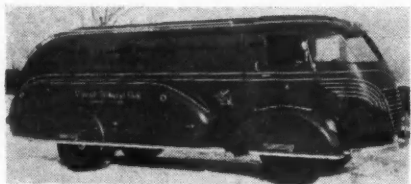
10 m.p.h.                      30 m.p.h.  
20 m.p.h.                      60 m.p.h.

9. Not that you can ever do anything about it but it is comforting to know that in an ordinary truck engine operating at any speed the camshaft turns at

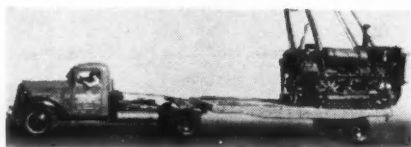
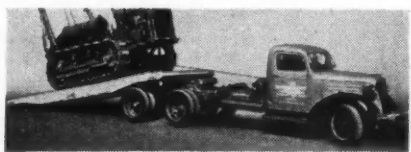
crankshaft speed  
twice crankshaft speed  
 $\frac{1}{2}$  crankshaft speed

10. If Alfred E. Reeves were introduced as a banquet speaker but the applause made it impossible for you to hear what his connection was you would automatically think of Secretary of Transportation (President's cabinet)

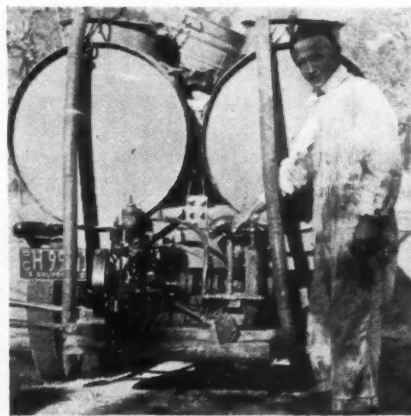
A.M.A.      I.C.C.      movie comedian



1600 imperial gallons of fuel oil swish unobtrusively inside the ultra-streamlined Mack just purchased by the Vipond-Tolhurst Coal Co., Ltd., Montreal, for house delivery



One man loaded the 26,000-lb. tractor in 25 minutes on the new Hobbs self-loading float. A winch supplies all the brawn. Once the truck has pulled the load up the inclined "semi", it rips around front and pulls the trailer up to traveling position



Two 1200-gallon tanks, a portable gas engine, all on a 5-ton truck is Acme Cesspool Co.'s answer to the Los Angeles sewage problem. The average pool is pumped dry in eight minutes and the flat rate is \$8.00



# AFTER HOURS

EDITORIAL COMMENT BY GEORGE T. HOOK, EDITOR

**S**OUTH CAROLINA—to pick up the thread of last month's editorial discourse—went right ahead with its peculiar motor truck legislation and adopted a gross weight of 40,000 lb., a performance factor calling for 20 m.p.h. on a 5 per cent grade, and, queerest of all, a requirement that trucks 20,000 lb. and over slow down to 20 m.p.h. when meeting other vehicles.

Readers must have gathered from our remarks last month that we were considerably disturbed by this development in South Carolina. Well, we were, and we still are. What amazes us is that our disturbance is not shared throughout the industry. We have discussed the matter with fleet operators, with factory officials and with association executives. We have been struck by the fact that in practically all instances the meeting speed provision produced laughter and that there was a decided tendency to dismiss both the 5 per cent at 20 performance factor and the 20 m.p.h. meeting speed as impossible of enforcement.

The argument advanced was that

these provisions would be ignored by the enforcement officials of the state. Further, that the trucking interests played a good brand of practical politics by letting the questionable provisions pass without a battle in order to gain their main end—the 10,000 lb. gross.

No one in the industry can be positive of the validity of this premise. It may be that promises have been made, but there is nothing that compels the keeping of political promises for a longer time than it is politically expedient to keep them.

The industry must not fail to consider these points:

1. That these provisions are now law. That, considered as a whole, they are bad law.

2. That the law, even though not enforced today, remains a constant menace to the industry because it can be invoked tomorrow through official pique, changes in enforcement personnel, switches in political power, and so on.

3. That for years the same State of South Carolina had a 20,000 lb.

## Economy Exploit

The same faithful agent, who years ago reported that a large manufacturer was about to drop a four-cylinder engine and standardize on a six, now reports ahead of the field as usual that the same company is working on a new four. His report trails off in a generalization that all vehicle makers are working for economy.

## Ears Egotism

Just to put the snooty Overland department, which gave you just a hint last month of an engine-behind-the-driver's seat in a package car, in its place we now tell you the story. There will be three optional 4-cylinder powerplants and three body sizes on two wheelbases. There will be available at extra cost a semi-automatic transmission to minimize footwork for stand-up-and-drive-it work.

## Electric Earshot

A supplementary report on the gas-electric mentioned at least once before in these columns indicates that our agent will not be able to supply us with a complete description before Sept. 1.

## Hypoid Hypodermic

Another independent passenger-car manufacturer will have hypoid gears in his cars next year. If he double-crosses this department and fails to follow our prediction he has bought a lot of factory equipment that will be useless according to our agent in charge of hypoid gear cutting equipment.

## Knee Knowledge

An agent who is always in on the know ran up our phone bill something terrific with a collect call to tell us that a passenger car manufacturer with a distinctive design

## ... SOUTH CAROLINA GOES OVERBOARD ON LEGISLATION

weight law which was "officially" disregarded. Then, of a sudden, the devil popped up and the truck industry was told it had to comply. To defeat this change in "official" attitude the industry had to spend thousands of dollars in an attempt to enjoin the State from enforcing the law on constitutional grounds. The U. S. Supreme Court eventually declared the law constitutional. Then followed the expenditure of more thousands of dollars to get the state legislature to frame a more generous law, which as passed turned out to be a dangerous compromise.

THE above is basis enough for the supposition that the industry may have to go through this whole legal and legislative rigamarole again. Because the moment there is an "official" change to enforcement, the truck industry will find that the benefits granted by the 40,000 lb. section are completely nullified by the performance factor of 5 per cent grade at 20 m.p.h. Calling on our knowledge of truck design we daresay

there isn't a truck in the entire State of South Carolina and in adjoining states that can carry 40,000 lb. gross up a 5 per cent grade at 20 m.p.h. Much lower grosses will have to be carried or newer and costlier equipment purchased.

FOR the time being, it is, of course, understood that the truck industry can only pray that the questionable provisions will not be enforced. For the future they can, however, plan to have the next session of the legislature reconsider these provisions. By that time the studies of performance factors along sound engineering lines, now in progress, may have been completed and the industry may have at its disposal arguments which will carry weight among the legislators.

Our sole reason for prolonging this discussion—in case the obvious excuse has escaped readers—is to bring the South Carolina case to the attention of the industry in other states so that watchfulness may be exercised and enactment of the ill-considered precedent avoided.

of independent front wheel suspension will toss it all overboard. The models coming up will have what might be called conventional knee action.

### Transmission Topic

This department is now in possession of a letter which proves that we were not spoofing when we made mention earlier of a new four-speed truck transmission. This letter assures us that a description and illustrations will be in our hands in time for the next issue.

### Tailgate Tale

This department was recently taken for a ride on a tailgate which lifted us from the ground to the body floor and upon reaching this lofty position moved us forward to the front of the truck. Power was from a power take-off and a man either at

the back of the truck or in the cab would control our destinies as long as we were on the tailgate.

### Supercharger Savor

One of the old line truck manufacturers has been experimenting with superchargers for some time, guarding the results zealously. Our more-than-zealous agent finds that the results are satisfactory, which bodes well for the chances of the device getting on truck engines as standard equipment.

### Diesel Disciple

A truck manufacturer who has maintained a frozen silence on the diesel engine question has thawed to the extent of admitting in closely guarded conversations that he has a new diesel and is about to announce it. His initiation will soon be announced in these pages.



Even though it takes 8000 volts of alternating current, the neon sign on Reifer's new Diamond T truck burns day and night



No longer need the salesman wag his trailer behind him—the Western Clipper has room for office and samples too. It's an IHC chassis and was developed by Western Printing & Lithographing Co., Racine, Wis.



\$35,000 worth of handsome sales appeal is Grove's Bromo Quinine's new White-powered Southern Clipper. Besides luxurious quarters for the crew the powerful public address system indirectly earns its keep



Not the admiral but the star salesman of the week is given the honor of riding the "flagship" in Shipley Baking Co.'s fleet.







Seasonal Cartridges, Restricting Orifices and Temperature Range Tests Are

# Check FILTERS TO CHECK FAILURES

**T**O make an intelligent selection of a filter for a fleet vehicle is not an easy task. Many factors are involved and all must be given proper consideration. In addition to what might be termed filter performance, allied factors, such as filter capacity with respect to engine size; life of filter element; first and maintenance costs; ease of servicing and installation; constructional details; likelihood of element disintegrating and unloading into the crankcase oil, thereby clogging the oil pump screen; suitability and reliability of



By *James I. Clower*

Associate Professor Machine Design  
Virginia Polytechnic Institute

fittings; proper location and size of restricting orifice, and type of constructional materials are factors which influence the final selection.

One example illustrates the importance of these factors. Recently there was called to my attention the case of excessive bearing failures in a fleet of over 100 vehicles. A check was made of many identical engines in other fleets and it was found that bearing failures were not abnormal. The only difference was that the vehicles with bearing failures were equipped with oil filters. The filters

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contained an abrasive as one of the filtering mediums, and it was thought that the failures were caused by this medium disintegrating and washing back into the crankcase oil, where it was picked up and circulated to the bearings. The filters were discarded before this hypothesis could be proved.

A subsequent check showed that the filters had been installed with the inlet connection made at the center of the bearing galley header and that a restricting orifice had not been used. A check of the oil pressure, using an SAE 30 oil at 108 deg. F., gave a maximum pressure of 30 lb. without filter and only 18 lb. with filter installed, but without an orifice. The installation of orifices of .078 and .059 in. diameters gave pressures of 27 and 28 lb. respectively.

The probabilities are that the failures in this case were not caused by abra-

sive seepage but by a too low oil pressure, which robbed the bearings of the requisite quantity of oil. Such failures have made many enemies and, in most instances, the filter has not been directly responsible.

The flow rate through the filter is very important. I do not believe that the necessity for and size of orifice should be a matter for decision by an operator or filter manufacturer, but should be a recommendation made by the engine builder, who is in the best position to know the quantity of oil that can be safely by-passed from the oiling system. The size of orifices furnished by filter builders varies from .043 to .093-in. diameter. It follows that flow rates also vary, but over a wider range because the flow is proportional to the square of the diameter. A check of the flow rates of 11 different filters, using SAE 30 oil at 180 deg. F., and 30 lb. gage pressure, gave values

ranging from approximately 7 to 48 gal. per hour, the average for the entire group being 25 gal. per hour.

Some filters are provided with an integral orifice at the inlet, and cases have occurred where this type of filter was replaced by another which did not contain a built-in orifice and was connected to the same piping. As a result, the bearings were not supplied with the requisite quantity of oil and burned out.

Perhaps the engine builders could go further than a mere recommendation of the correct orifice size by providing fitting holes, the inlet one containing the correct size orifice for the engine in question.

Filter performance is of vital importance to the prospective purchaser. Plainly, unbiased performance results cannot usually be secured from the over-zealous filter salesman, nor generally from an oil salesman.

(TURN TO PAGE 40, PLEASE)

## Suggested by Impartial Investigator as Trouble Stoppers for Oil Filters

TABLE I—FILTER TEST RESULTS

General Conditions: Duration of tests, 48 hr. continuous Pressure at inlet of filter, 35 lb. gage. Sludge, Crankcase settlings. Oil sump temperature, 175° F.

| FILTER CHARACTERISTICS |        |                  |                    |                               |       |          | OIL CHARACTERISTICS |           |                  |                     |                      |                         |                                |               |        |        |                        |
|------------------------|--------|------------------|--------------------|-------------------------------|-------|----------|---------------------|-----------|------------------|---------------------|----------------------|-------------------------|--------------------------------|---------------|--------|--------|------------------------|
| Oil Sample             | Filter | Filtering Medium | Chemically Treated | Cartridge Weight<br>(lb.—oz.) |       |          | Specific Gravity    | Color (1) | Carbon Residue % | Precipitation No. % | Naphtha Insolubles % | Chloroform Insolubles % | Asphaltenes<br>(By Difference) | Viscosity SUS |        |        | Acidity,<br>MG. KOH GM |
|                        |        |                  |                    | Original                      | Final | Increase |                     |           |                  |                     |                      |                         |                                | 100 F.        | 130 F. | 210 F. |                        |
| New                    |        |                  |                    |                               |       |          | .880                | 1         | .24              | 0                   | .035                 | .026                    | .009                           | 593           | 269    | 71.3   | .075                   |
| A-8                    |        |                  |                    |                               |       |          | .882                | 1.69      | .26              | Tr.                 | .058                 | .021                    | .037                           | 585           | 266    | 71.0   | .085                   |
| B-8                    |        |                  |                    |                               |       |          | .886                | Black     | .83              | .25                 | .672                 | .488                    | .184                           | 643           | 285    | 74.3   | .63                    |
| C-8                    | C      | Cotton           | No                 | 1-2                           | 2-11  | 1-9      | .884                | 3.29      | .44              | 0                   | .068                 | .043                    | .025                           | 598           | 271    | 73.0   | .54                    |
| D-8                    | D      | Igneonite        | No                 | 1-2                           | 2-9   | 1-7      | .884                | 3.38      | .39              | Tr.                 | .063                 | .028                    | .035                           | 618           | 274    | 73.0   | .57                    |
| E-8                    | E      | Cotton           | Yes                | 0-10                          | 1-14  | 1-4      | .887                | 3.62      | .38              | Tr.                 | .095                 | .073                    | .022                           | 538           | 244    | 68.5   | .65                    |
| F-8                    | F      | Fullers' Earth   | No                 | 3-10                          | 4-15  | 1-5      | .883                | 3.36      | .29              | Tr.                 | .069                 | .034                    | .035                           | 617           | 276    | 73.0   | .10                    |
| G-8                    | G      | Fullers' Earth   | No                 | 3-8                           | 5-2   | 1-10     | .883                | 2.83      | .32              | 0                   | .061                 | .028                    | .033                           | 623           | 280    | 73.2   | .09                    |
| H-8                    | H      | Cotton           | No                 | 1-6                           | 2-14  | 1-8      | .884                | 4.28      | .39              | .02                 | .084                 | .039                    | .045                           | 626           | 283    | 73.8   | .53                    |
| I-8                    | I      | Cellulose        | Yes                | 1-5                           | 2-15  | 1-10     | .888                | 4.02      | .41              | Tr.                 | .071                 | .048                    | .023                           | 612           | 275    | 72.0   | .50                    |
| J-8                    | J      | Cotton           | Yes                | 1-5                           | 3-10  | 2-5      | .884                | 3.66      | .34              | Tr.                 | .126                 | .092                    | .069                           | 614           | 279    | 72.5   | .45                    |
| Sludge                 |        |                  |                    |                               |       |          | .936                | Black     | 3.93             | 1.25                | 3.74                 | 2.90                    | .840                           |               |        |        | 3.76                   |

(1) Determined by means of photoelectric colorimeter. Numbers are relative. Tr. Trace.

Oil used in the tests was a medium priced brand, SAE 30, which contained only a pour depressor; sludge stock, crankcase settlings from passenger cars and trucks; period of withdrawing samples and adding sludge stock, 6 hr.; dosages of sludge stock, 150, 140, 130, 120, 110, 100, 90 and 80 milliliters respectively. Test A-8 was run without the addition of sludge and with filter by-passed. Test B-8 was run with filter by-passed but sludge added in the above dosages. All filter tests were run in exactly the same manner as test B-8. Table I shows

TABLE II—RANK OF FILTERS

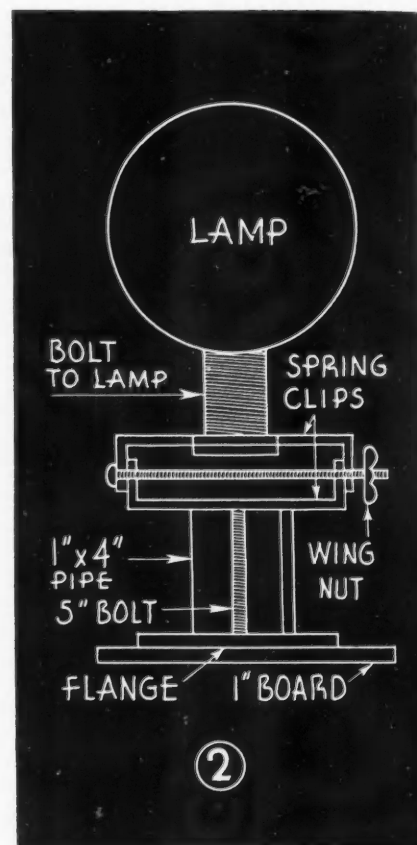
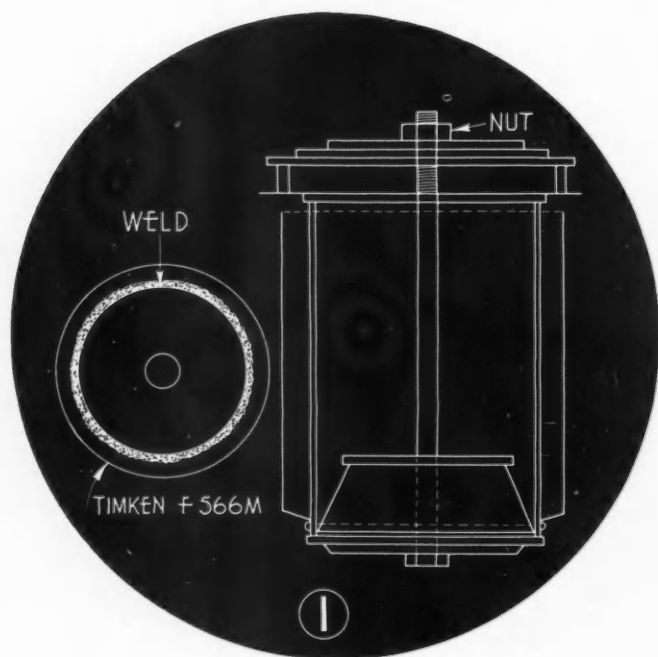
| FILTER                       | C | D | E | F | G | H | I | J |
|------------------------------|---|---|---|---|---|---|---|---|
| Specific Gravity             | 3 | 3 | 3 | 1 | 1 | 3 | 8 | 3 |
| Color                        | 2 | 4 | 5 | 3 | 1 | 8 | 7 | 6 |
| Carbon Residue               | 7 | 5 | 4 | 1 | 2 | 5 | 6 | 3 |
| Precipitation No.            | 1 | 3 | 3 | 3 | 1 | 8 | 3 | 3 |
| Acidity                      | 6 | 7 | 8 | 2 | 1 | 5 | 4 | 3 |
| Naphtha Insolubles           | 3 | 2 | 7 | 4 | 1 | 6 | 5 | 8 |
| Chloroform Insolubles        | 5 | 1 | 7 | 3 | 1 | 4 | 6 | 8 |
| Asphaltenes                  | 3 | 5 | 1 | 5 | 4 | 7 | 2 | 8 |
| Increase Weight of Cartridge | 4 | 6 | 8 | 7 | 2 | 5 | 2 | 1 |
| Viscosity SUS                |   |   |   |   |   |   |   |   |
| 100 F.                       | 1 | 5 | 8 | 4 | 6 | 7 | 2 | 3 |
| 130 F.                       | 1 | 2 | 8 | 4 | 6 | 7 | 3 | 5 |
| 210 F.                       | 6 | 2 | 2 | 4 | 2 | 3 | 5 | 1 |

only the inspections of the last sample of oil withdrawn, i.e., the sample withdrawn at the termination of the test.

Table II gives the order of rank of the various filters using the inspection of oil sample A-8 as a standard of comparison.

This test obviously assimilated intermediate temperature conditions more closely than either of the extremities. It, of course, does not give the complete performance of any filter. Other tests would doubtless change materially the order of rank of the filters.

Correction: Filter E is not chemically treated



*Five Dollars*

**Will Be Paid by Commercial Car Journal for Each Shop Hint Accepted. Ideas**

### 1. Sleeve Puller

By T. Buns

Bise Transfer Co., Cincinnati, Ohio

We made a full-surface sleeve puller, using the usual method of pulling by means of a threaded rod. For the bottom or contact piece, we use an old Timken bearing cone. A  $\frac{3}{8}$ -in. piece of steel is welded into the cone at the largest point in the taper and the steel is drilled for the threaded rod. The shoulder on the cone gives a full bearing on the bottom of the sleeve. A Timken No. F566M fits the cylinder sleeves of the B4 International. Other cones can be used for various size sleeves.

### 2. Portable Light

By Robert V. Poor

Dedham and Hyde Park Gas Co.,  
Hyde Park, Mass.

We had some trouble getting suitable lights for our street crews to use in trenches at night while taking care of gas leaks. We finally made some from headlights taken from old trucks. We took a spring

clip and drilled it to fit the bolt that comes out of the bottom of the lamp so that the bolt could be inserted through the center of the clip. A nut holds the light tight to the clip which is turned prongs down. Another clip turned prongs up is drilled 5 in. for a threaded rod which is inserted through a 1 ft. sq. board about 1 in. thick. Horizontal drilling through the prongs of the clips and insertion of another threaded rod with a wing nut provides for the light to be set at any angle.

A 4-in. length of pipe screwed into a pipe flange which in turn screwed to the floorboard makes the light stay upright. A 32 cp. bulb is used in the light which is connected to a plug in the instrument panel.

### 3. Tire Jack

By W. W. Scott

Pinellas Lumber Co., St. Petersburg, Fla.

To eliminate brute labor in removing large tires from wheels, I took an old type lock rim and cut

it in half, welding lugs on it to make it adjustable for size. From an old truck frame I made a frame of channel iron. Now, to remove a tire I simply adjust the old rim so that the tire rests on it, set a hydraulic jack on the wheel and back it against the top of the frame and the jack pushes the wheel right out of the tire without damage to either.

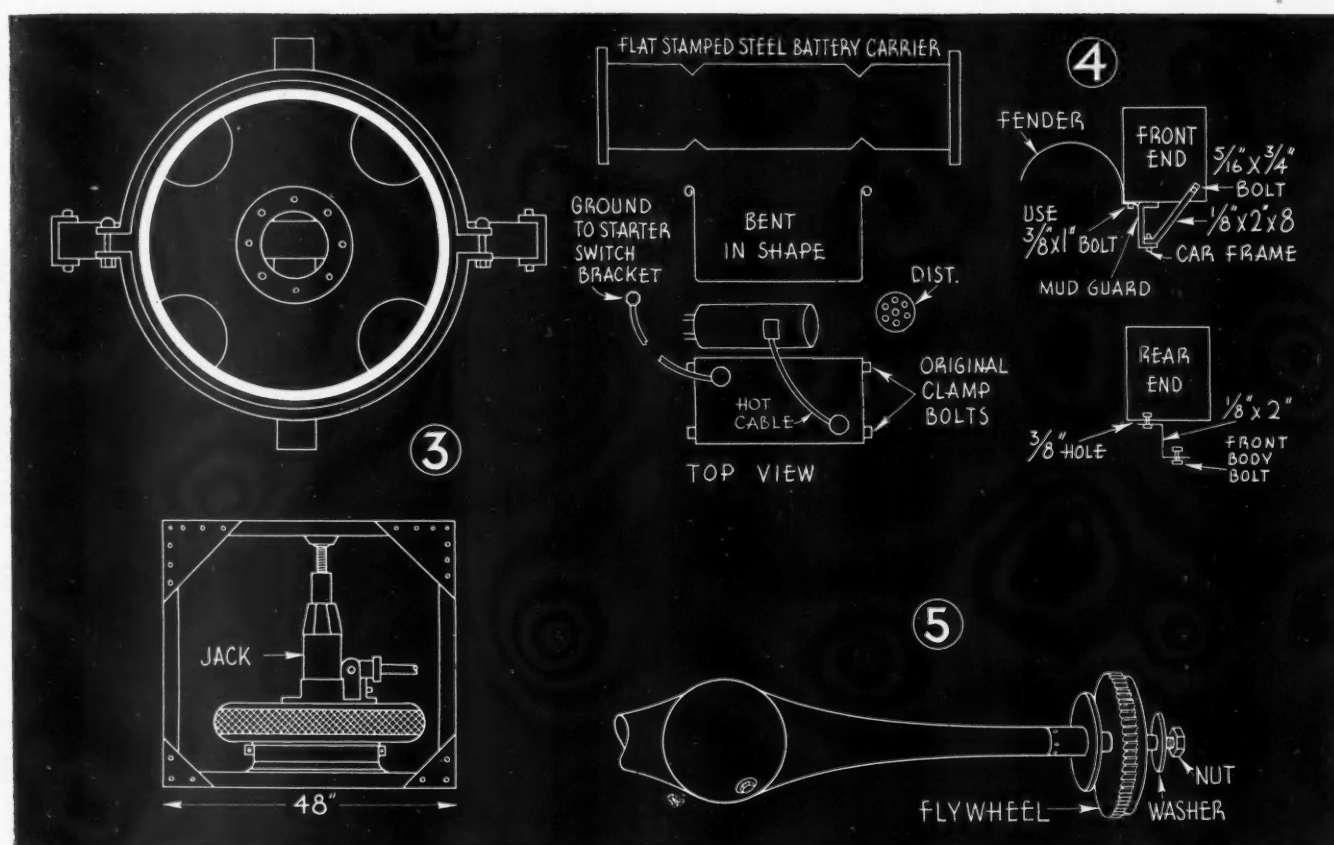
### 4. Battery Box

By R. C. Balzer

Montgomery, Ala.

I think every fleet of over three trucks should have the battery mounted under the hood to save time in servicing. The drawing illustrates one doped out for Chevrolet which costs \$0.65 list and can be made in two hours. The flat sheet battery carrier can be bought from your jobber for \$0.50 and all of the old leads and clamps can be used. After the batteries have been mounted under the hood, five batteries can be serviced while you would be getting the floorboards out of the conventional truck.





Count — No matter How Rough. We Will Polish Them Up For Publication

# SHOP HINTS

*From*

## FLEET SHOPS

### 5. Axle Shaft Puller

By Ernest Martin

209 S. 18th St., Fort Smith, Ark.

Axle shafts can be removed quite easily from semi-floating axles even when you do not have the correct type inertia puller. Simply slip an old flywheel on the taper of the axle shaft and then a washer sufficiently large so that the center opening of the flywheel will not pass over it. Use the wheel lock nut to hold the washer in place and then slide the flywheel back and forth as a hammer. The shaft will come.

### 6. Bleeding Practice

By Billie Burgan

Hage's Ice Cream Ltd., San Diego, Cal.

We found that we could not get rid of all the air in vertical brake cylinders until we removed the two holding screws, loosened the fluid connection and turned the cylinder horizontal. In this position we set the fluid connection snug and did the bleeding. After bleeding loosen connection, return to vertical, start screws and tighten connection.



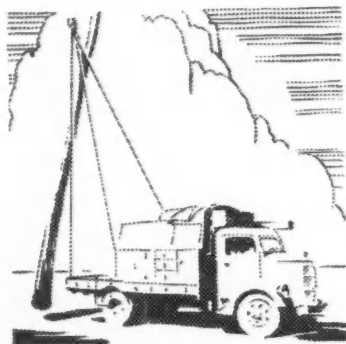
**JOB analysis needed — Jack North,**  
of Commonwealth & Southern Corp.



**OIL filters are indispensable—Fred**  
Heinlein, Cincinnati Gas & Electric



**OLD vehicles should be modernized—**  
Errol Gay, The Ethyl Gasoline Corp.



# UTILITY MEN TRADE FLEET IDEAS

**ON THE SELECTION OF BODIES AND CHASSIS . . . PERIODIC**

COMMERCIAL CAR JOURNAL  
JUNE, 1938

**A** VARIETY of subjects, many of them of interest to fleets in general, claimed the attention of public utility fleet operators at Cleveland April 28 and 29 in a two-day meeting specially sponsored by the Society of Automotive Engineers as a Transportation and Maintenance Activity.

The subjects fell into two groups: selection of equipment and care of equipment. In the former category was a discussion of high-pressure tires versus balloons. Because of its momentous character, it is treated separately elsewhere in this issue.

The selection of truck chassis was exhaustively discussed by J. R. North, automotive engineer, The Commonwealth & Southern Corp. He reached these conclusions:

"1. The selection of truck chassis warrants careful consideration of the service, load and performance requirements for each class of service, and analyses of various characteristics of the vehicles available. The trucks must be of adequate size and strength and power to do the work



**BUYING** practice disregards theory—  
Capt. Axelson, Columbia Gas & Elec.



**SMALL** town dealers are lax—Harry  
Mathews, Pub. Utility Eng. & Service



**HEAD** man of T. & M. Utilities Commit-  
tee—Jean Ray, of Virginia Electric

required, and at the same time be economical to operate, adequately fast, and neither larger nor heavier than necessary. A short wheelbase, lightweight, sturdy chassis is desirable from the standpoint of ease of handling and low cost of operation.

"2. In selecting a suitable chassis for specific applications, the preferred procedure should include the following:

- (a) Transportation job analyses.
  - Type of service, body, equipment, etc.
  - Weight of body, cab, load, crew and chassis.
  - Total gross vehicle weight required.
  - Performance requirements.
- (b) Comparison of suitable chassis.
  - Chassis gross weight ability.
  - Chassis dimensions—Wheelbase, cab-rear axle, cab-front axle, frame section modulus, etc.
  - Service brake effective area.
  - Engine displacement.

Performance.

Maximum continuous speed in high gear.

Tractor rating.

Grade ability and simultaneous speed.

S.A.E. performance factor.

Availability of parts and service.

Manufacturers' qualifications.

(c) Comparative costs.

First cost complete.

Estimated operating and maintenance costs.

Estimated depreciation.

(d) Purchase specifications.

"3. Present-day equipment, because of improvements in the design and performance, may be considerably lighter and less costly, especially in the larger units, than equipment purchased but a few years ago. The depreciation and operating costs of these lighter units will be correspondingly less.

"4. It appears preferable generally

to specify the desired results and to permit the manufacturers' engineers to select the proper component parts to accomplish these results rather than to attempt to specify the means whereby the results will be obtained, i.e., specify performance requirements rather than materials and processes, and select the chassis accordingly."

In arriving at his conclusions, Mr. North stressed the need for establishing specifications and making certain that the equipment chosen meets them. On the subject of service brakes, he observed that while it was common practice to provide about 40 sq. in. of effective lining area for every 1000 lb. of gross vehicle weight, in the opinion of some, the least it should be is 25 sq. in.

The discussion was spirited and for a moment digressed into an exchange of pleasantries on self-service versus farmed-out service.

Captain O. A. Axelson, automob-  
(TURN TO PAGE 62, PLEASE)

## TUNE-UP . . . ENGINE CARE . . . REPAIR PRACTICES AND TIRES

COMMERCIAL CAR JOURNAL  
JUNE, 1938





**FIRESTONE'S** Hale argued against high pressures at length and capped his presentation with an emphatic "I'll be damned if I see any excuse for them"

**EDITOR'S NOTE:** Five tire experts participated in this discussion of high-pressure pneumatics versus balloons at the S.A.E. T & M Public Utility Meeting in Cleveland late in April. Mr. Hale presented a paper and the other tire men followed with prepared or extemporaneous discussions. Here are their viewpoints edited for publication. The observations of others are appended.

**By J. E. HALE**

**Manager, Development Department  
Firestone Tire & Rubber Co.**

**T**HE whole modern tendency in motor vehicle operation is to high speeds without detriment to the vehicle or the load it carries, freedom from road delays, ample control for safety, and low cost of deliveries. The faster the vehicles are expected to operate, the more desirable it is to have the pressures reduced. Thus motor trucks should be equipped with balloon tires in preference to the high-pressure type. The balloon tires have gone through their period of development and are now thoroughly perfected so that they are freer from troubles than the high-pressure tires and in practically all manner of use are more economical.

The legislative trend is in favor of balloon tires, as it is realized by highway authorities that lower pressures are less damaging to roads. In approximately half the states, more load is permitted on balloon tires, either because of the increased section measurement, the increased width of contact, or by tables specifically limiting the load according to tire size.

Pressure recommendations for balloon tires average about one-third

# TIRE EXPERTS PUNCTURE THE

**Agree That Balloon Tires Will Give Better Service and Result in Lower Cost**

COMMERCIAL CAR JOURNAL  
JUNE, 1938

lower than for high-pressure tires, a condition which enables the balloon tires to absorb road irregularities much more easily. The practical result of this better cushioning is to make it possible to operate the truck at much higher speeds without damage to the truck mechanism, or if the loads are of a fragile nature, without endangering the material carried.

The low pressure of the balloon type truck tires will certainly favor all types of highways. Lower pressures and larger area of contact will mean lower intensity of impact on pavement, consequently, less tendency to break up either the surface or the foundation. On secondary roads of less sturdy construction, the lower pressures should be of even greater benefit in preserving both the surface and foundation.

Probably the most impressive benefit from the use of balloon tires in all classes of service is the fact that trucks and busses can be operated at higher average speed; they do not have to slow down so much for bad places in the road and have sufficient additional safety control so that any given vehicle can have a larger output of work per day.

Balloon tires are easier on drivers, which while not of measurable benefit, is certainly helpful from every point of view.

The matter of road delays interfering with deliveries is a factor of great importance and here again the balloon type is more dependable and less subject to premature failures.

In many classes of transportation service it is necessary for trucks to return with no load and under these

(TURN TO PAGE 78, PLEASE)



**GENERAL'S Dalsky said the preference for the 34x7 was diminishing and the problem resolved itself into the question: Shall the 32x6 be replaced?**



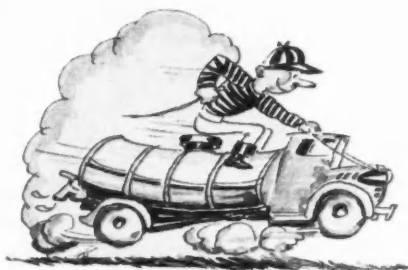
**GOODRICH'S Elliott said on bus mileage accounts from 1930 to 1938 average mileage of the 38x7 10-ply improved 41% and the 9.00-20 132%**

**GOODYEAR'S Shively declared that to obtain lowest ultimate operating cost per mile, adequate and proper size balloons should be used**

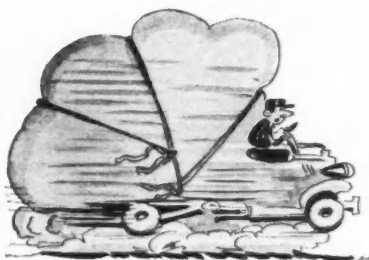
## USE OF HIGH PRESSURE TIRES

**of Operation, As Proved by Adjustment Experience Over a Period of Years**

COMMERCIAL CAR JOURNAL  
JUNE, 1938



JUICE JOCKEY



BALLOON FREIGHT



SOLD OUT TO THE YANKEES

## MORE TRUCK DRIVER LINGO

**ARMSTRONG STARTER**—the crank handle

**ASKING FOR THE ROAD**—car behind truck sounding horn

**BALLOON FREIGHT**—light, bulky merchandise

**BANJO**—act of shoveling on load of dirt with constant up and down motion

**BAREBACK**—a tractor without a trailer

**BARRELING**—running with throttle wide open

**BEACHED HER**—coasted to parking place

**BEDSTEADER**—sleepy driver

**BEEN AROUND THE HORN**—truck with high mileage on speedometer

**BELLY UP**—a truck over on side or on its back

**BIBLE**—bill book

**BICYCLE TIRES**—undersized tires

**BIG HOLE**—low gear

**BLIMP**—short trailer, high on tractor

**BLUNT NOSE**—cab over engine truck

**BOB TAIL**—same as Bareback

**BOLOGNAS**—tires

**BOOM WAGON**—nitro glycerine truck

**BOSS HER**—backing tractor into position

**BROKE TO LEAD**—a truck that needs to be towed in

**BROWNIE**—three speed auxiliary transmission

**BUG JUICE**—gasoline

**BULL O' THE WOODS**—officer in charge of district

**BUTTONING HER UP**—tying down a load on a truck or trailer

**Spinners, Juice Jockeys, Rough Riders and Hack Hands Join in Round Up of Quaint Trucking Terms**



NOAH'S ARK

**CAKLE CRATE**—poultry truck

**CANDY WAGON**—a light truck

**CEMENT MIXER**—truck with noisy engine or broken muffler

**CHASER**—company man who hurries driver in loading and unloading truck

**CINCH 'ER**—same as buttoning her up

**CINCHERS**—brakes

**COG STRIPPER**—driver who makes noise when shifting gears

**COLD**—behind schedule

**COMMENCER**—electric starter

**COMPANY MAN**—a squealer

**COMPANY NOTCH**—same as Big Hole

**COP CALLER**—truck with squeaking brakes

**COP SPOTTER**—rear view mirror

**COWBOY**—reckless driver

**CRASH WAGON**—ambulance

**CREEPER**—same as Big Hole

**CUT HER WATER OFF AND READ 'ER METER**—to stop truck and find ailment, also when someone pulls boner in traffic

**DEADHEADING**—going from place to place without a load

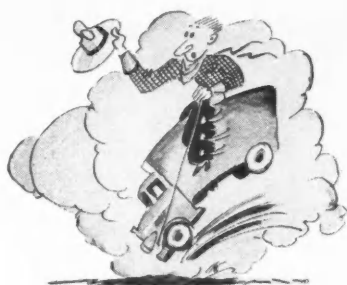
**DINKY**—a short coupled truck

**DOG FASHION**—truck or trailer that does not track

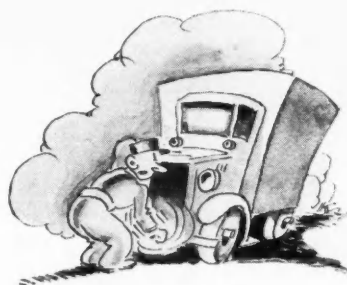
**DOWN IN THE KITCHEN**—creeper gear

**DYNAMITER**—driver that abuses truck severely





KIDNEY BUSTER



TWIST HER TAIL

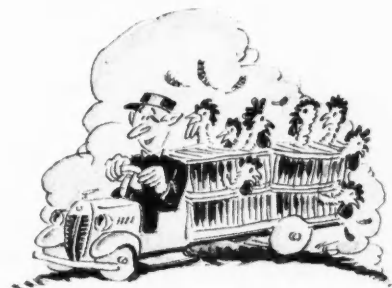


WHITE COLLAR MAN

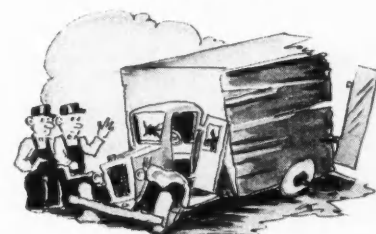
**Editor's Note:** This is the second edition of CCJ's glossary of trucking terms. It includes all items previously published and about twice as many new ones made possible by a generous response of readers. We are sure this list is far from complete. To make it so our offer still stands: 25 cents for each new term and its definition that is accepted.

EMERJENSON—emergency brake  
 FAIRWEATHER TRUCK—engine that will die out or skip during rain or snow storm  
 FLOORBOARDING—same as Barreling  
 FOLLOW HER AROUND—same as Boss Her  
 FOOT IN THE CARBURETOR—reference to a speeding driver  
 FRIENDLY FENDERS—broken fenders that wave at everyone that passes  
 FROGGIN—slip clutch with wide open throttle while stuck  
 GANDY DANCER—weaving truck  
 GARGLE 'ER—to drain or clean out the radiator  
 GEAR FIGHTER—same as Cog Stripper  
 GET OUT THE BOOK—driver making error by stalling, etc.  
 GETTING THE BOOK—maximum police penalty  
 GO-AWAY COG—fast driving  
 GOOSE IT—feed gas in irregular spurts  
 GOT MARBLES IN THE OIL—same as Cement Mixer  
 GRANDMA HOLE—same as Big Hole  
 GROUNDED—license revoked  
 GROWLER—same as Big Hole  
 GRUNT AND SQUEAL JOCKEY—stock hauler  
 GUNNYSACKED—a badly abused truck  
 HACK HAND—truck driver.

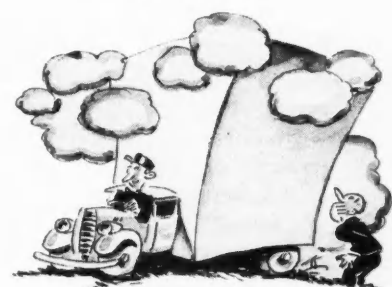
HARD ON HANDLE BARS—hard steering of short wheelbase truck when loaded  
 HEAVY FOOT—fast driver  
 HIGHBALLING—same as barreling  
 HILL SNATCHER—thief who breaks into trucks on hills  
 HORSES—tractors  
 HOT—ahead of schedule  
 HOT ONE—special delivery  
 HOT SHOT—through schedule  
 HOUSE BROKEN—does not leak oil, grease or water  
 I-CAN-CATCH—Interstate Commerce Commission  
 I-MEN—I.C.C. investigators  
 IRON UP—putting on chains  
 JAG—small load of freight  
 JESSE JAMES—police judge  
 JOHNSON BAR—emergency brake lever  
 JUICE BOX—electric motored vehicle  
 JUICE JOCKEY—gasoline truck driver  
 KIDNEY BUSTER—hard-riding truck  
 KILLER—a truck with no brakes  
 LEAD FOOT—stepping on the gas  
 LIFTEN BEDS—dump bodies  
 LOAD OF POST HOLES—empty trailer  
 LOAD OF STICKS—a truck and trailer load of big logs  
 LOAD OF WIND—same as Balloon Freight  
 MAIN MIXING STICK—gear shift lever



CACKLE CRATE



GUNNY SACKED



SCOW

MIXER—carburetor  
 MIXING THEM UP—engine with pre-ignition  
 MULES—same as Horses  
 MUSEUM PIECE—old truck  
 NOAH'S ARK—oldest truck in fleet  
 NO ANCHORS—same as Killer  
 NO. 1—same as Big Hole  
 OIL BURNER—diesel-powered truck  
 ON THE BUTTON—crankcase oil up to level  
 ON THE BUTTON—truck going full speed  
 OUGHT HOLE—same as Big Hole  
 PAJAMA WAGON—sleeper bus  
 PAY HOLE—overdrive high gear  
 (TURN TO PAGE 60, PLEASE)

**A** MOVEMENT has been started in the truck industry to set up a national association which will be dedicated to preserving the rights, privileges and welfare of private carriers by truck.

At the moment there is being formed an Organization Committee which will proceed along lines laid down at a meeting of trade association representatives in Washington, D. C., on May 3. The head of this committee is Robert C. Hibben, executive secretary of the International Association of Ice Cream Manufacturers.

The meeting, held in Room 1 of the U. S. Chamber of Commerce Building which has been the setting for so many national truck organization movements, was the culmination of studies of existing means for protecting private carriers against threatening legislation which were made by committees of the National Highway Users Conference.

Chester H. Gray, director of the National Highway Users Conference, acted as temporary chairman of the meeting. He called on Dawes E. Brishine, research counsel for the Conference, to sketch the legislative trends affecting private carriers. Mr. Brishine's comments, in extended form, will be found on the opposite page.

It was knowledge of these legislative trends, Mr. Gray said, that prompted the Conference to appoint a special committee two years ago to investigate the need for a private carrier organization. This committee recommended that a determined effort should be made to form a strong private carrier division within the structure of the American Trucking Associations, Inc. The A.T.A. was organized originally to represent all types of carriers and its executive personnel have withstood repeated efforts by so-called radical elements in its membership to restrict its interests to those affecting for-hire carriers.



## PRIVATE

### Move to Organize Themselves On Independent National Basis

By *George T. Hook*

Editor

Commercial Car Journal

The A.T.A. fell in with this recommendation and as vice-president of its private carrier group, J. F. Winchester, of Standard Oil of New Jersey, headed up the effort to enlarge and unify the private carrier division. This effort was a failure. As Mr. Winchester remarked at the meeting:

"It is my opinion that we could never have the proper type of expression on the part of private carriers within the A.T.A. Not that the management is not desirous of giving it proper expression but because there is a great deal of resistance by

private carriers to the work of the A.T.A.

"It is disturbing to see the A.T.A. stand by the railroads in asking for rate increases for the railroads, hoping to get an increase themselves in their turn. It indicates that as regulation becomes more strict, the common carriers by truck will stand side by side with the railroads."

Mr. Winchester left the implication with his hearers that common carriers and railroads would find a common ground for wishing stringent regulatory restrictions imposed on private

(TURN TO PAGE 90, PLEASE)



# CARRIERS

## Face Problems Posed by Regulatory Activity Menacing Them

By *Dawes E. Brisbane*

Research Counsel

National Highway Users Conference

**T**HE private carriers of the country have been living in a false sense of security.

These shipper-owners own and operate their own vehicles as an incidental phase of the commercial enterprises in which they are engaged. They transport their own goods in their own vehicles. They are not in any sense engaged in transportation by motor vehicle as a regular occupation or business. Many of them have come to believe, if they have thought of it at all, that these operations are not subject to governmental concern or regulatory implica-

tions, beyond the usual vehicle registration.

A rude awakening is in store for most of the owners of these three and a half million privately operated trucks. Probably a dozen states have already wedged in regulatory requirements directly affecting many large groups.

According to the Motor Carrier Act, 1935, Section 203 (a) (17), "The term 'private carrier of property by a motor vehicle' means any person not included in the terms 'common carrier by motor vehicle' or 'contract carrier by motor vehicle,'

who or which transports in interstate or foreign commerce by motor vehicle, property of which such person is the owner, lessee, or bailee when such transportation is for the purpose of sale, lease, rent or bailment or *in furtherance of any commercial enterprise.*" (Italics added.)

Forty-four states will hold regular legislative sessions during 1939. Even this far in advance, consideration is centering upon a veritable mass of bills to place privately operated trucks under strict regulation and to impose upon them, additional and prohibitive taxes. The ground work for this legislative program has been completed. The legal and constitutional background has been constructed—thoroughly and completely.

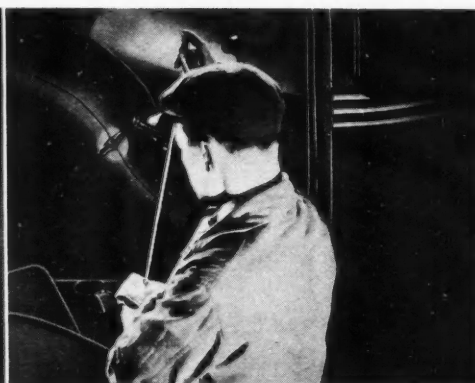
### State Restrictions

The State of Texas has pointed the way. Under the New Way Lumber Company case, an added charge for delivery of merchandise in the manufacturers' or merchants' own trucks condemns the private carrier to the status of a contract carrier. The Lumber Company having failed to obtain a permit from the Texas Railroad Commission, the arrest of its drivers resulted. Belying on the thesis that a state has the power and the right to regulate the traffic on its highways for the protection and preservation thereof (see *Stephenson vs. Binford*), the courts sustained action of the State Commission in holding the Company to be a contract carrier who must first obtain a permit to comply with the other motor carrier regulatory laws of the State.

The courts have sustained similar regulatory acts in Washington and Colorado, and the State of North Dakota imposes a fee for "commercial freighting" where any charge for the service is made "directly or indirectly."

The Nebraska State Commission recently issued an order to all wholesalers, jobbers, manufacturers and processors to appear and show cause.

(TURN TO PAGE 68, PLEASE)



# FORD

## C. O. E.

**Models Are Offered in 101 and 134-in. Wheelbases.**

**Opposite page:** The new Ford cab-over-engine truck with stake body on the 101-in. chassis. The 106 x 82-in. body is the same as used on the conventional 134-in. model. This page across the top: An outside radiator cap permits easy filling as does the oil filler cap accessible between the seats. A rubber shield keeps out fumes. For testing oil level a hand hole is provided in the side of engine cover. Directly above: Mechanic demonstrates the accessibility of engine top through side covers.

**F**EATUREING greater load space, driver comfort with short wheelbase, easy cab accessibility, conveniently arranged controls and openings for oil, water and fuel, a new cab-over-engine truck is announced by the Ford Motor Co. It is available in two wheelbases, the 101-in. and 134-in.

The 101-in. wheelbase chassis is offered with stake platform body, dump body and as cab and chassis. The former has a load length of 106 in. and a load width of 82 in. Load space of the dump body is 84 in. long, 66 in. wide and 12.62 in. high. Capacity is 1½ cu. yd.

The 134-in. wheelbase chassis is offered with stake platform body and as cab and chassis. Load length of the platform body is 142 in., width 82 in.

The length of the stake platform body on the 101-in. truck is the same as on the conventional 134-in.

unit and the length of the body on the 134-in. truck is the same as on the conventional 157-in. unit.

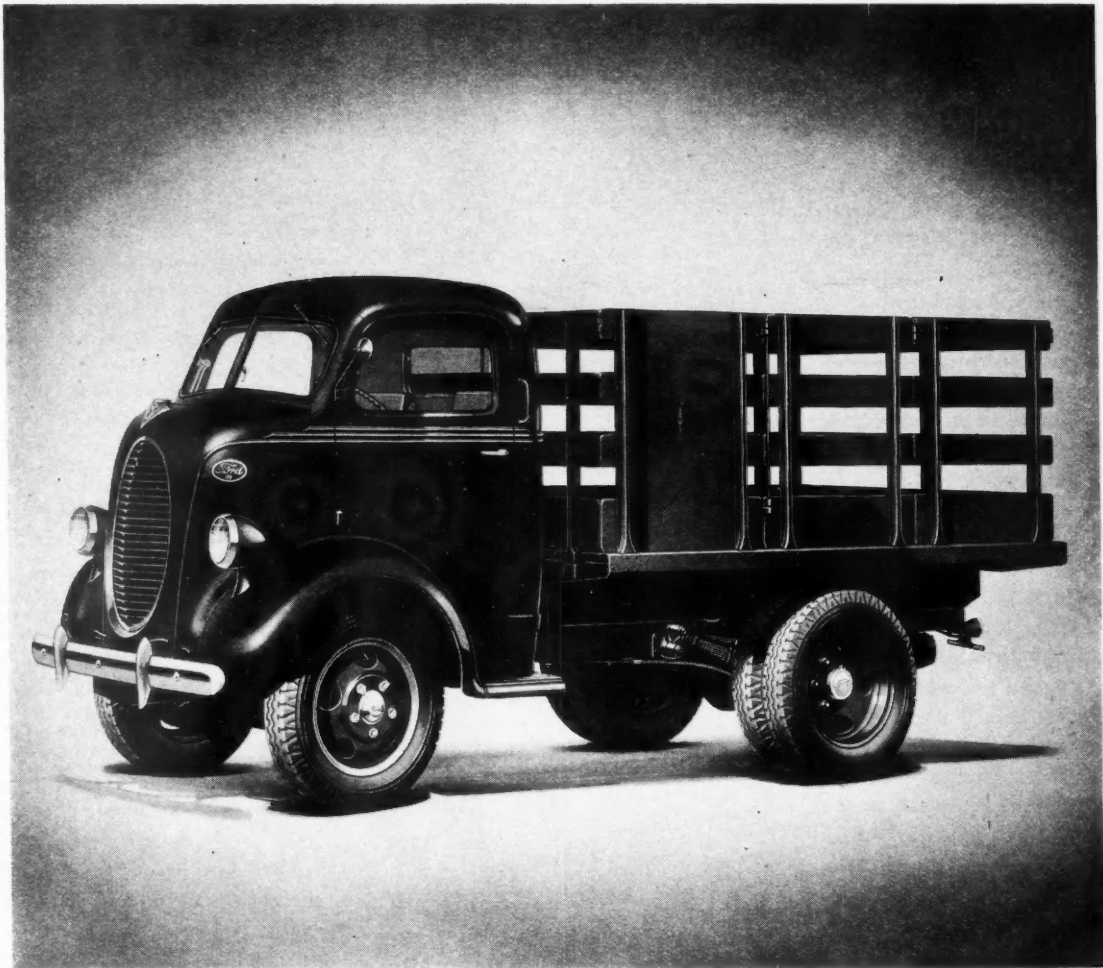
Both the 101-in. and 134-in. chassis are offered in drive-away type. This chassis includes hood, cowl and windshield.

Construction is the same as the conventional models except for changes made necessary by the cab-over-engine design. Most major parts such as power plant, rear axle, rear springs, steering gear, etc., are interchangeable.

A foreshortened hood, carrying the Ford oval truck grille, adorns the front end of the truck. At the top of the grille is the V-8 emblem. Combined with and partially concealed by the emblem is the radiator cap.

The windshield is hinged at the top and divided into two sections. Each section may be raised outward to a nearly horizontal position. Ven-





### Front End Has Larger Axle, Special Cross Member and Longitudinal Springs

tilation for the interior of the all-steel cab is by two large screened ventilators, one on each side of the cowl. A heavily insulated engine cover with quick removable sides insulates the interior of the cab against engine heat and sound.

Entrance to the cab is through wide doors hinged at the front. Running boards beneath the doors and assist handles attached to the cab behind the doors aid in making the interior of the cab easily accessible. Position of the driver in the cab-over-engine truck is substantially the same as in conventional Ford V-8 trucks. His view of the road ahead, however, is greatly increased.

The forward position of the cab makes it necessary to locate the steering column farther forward. As a result, the base of the column is ahead of the axle and the drag link runs rearward to it. Due to the fact that the load center is farther for-

ward, also that the cab is more directly over the axle, a front end assembly of greater strength is used. This consists of a larger axle and two longitudinal springs 37½ in. long.

A new front cross-member provides the support for the front end of the engine and radiator. Front spring eye pins and spring shackle brackets are rigidly mounted to the side of the frame channels. The shackle brackets include the mountings for the frame ends of the brake cable conduits.

Due to its shorter wheelbase length, the 101-in. chassis uses no bipartite shaft between transmission and forward end of the torque tube. Instead, the latter is coupled directly to the transmission through the usual ball and socket joint.

A cross-member designed to take all the driving and braking stresses and reinforced by diagonal channel

braces for greater endwise stability is used in connection with this mounting. In addition, strut rods to prevent endwise engine movement are used.

Fuel and oil as well as water are replenished without raising the hood or opening the engine cover. The fuel filler tube extends outside the cab at the right rear corner while the oil filler cap protrudes through the engine cover inside the cab. An oil-proof rubber shield prevents fumes from entering the cab. An opening or hand hole is provided in the side of the engine cover above the oil level measuring rod for checking the oil level.

Carburetor, spark plugs and top of the engine may easily be reached by removing the sides of the engine cover. Replacement of the engine is made through the front opening after grille and radiator have been removed.

## DODGE HAS NEW 3/4-TON MODELS

A NEW line of 3/4-ton trucks has been announced by Dodge Division of Chrysler. The new vehicles carry a maximum gross weight rating of 5200 lb.

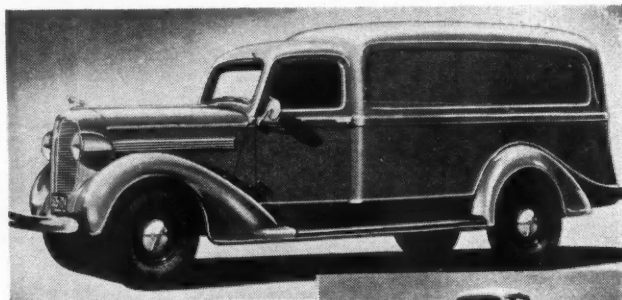
The line is available in two wheel-base lengths and body sizes. Chassis with flat cowl face, chassis and cab, express, stake and platform body types are available on a 120-in. w.b., while these, plus panel and canopy models, are available on a 136-in. wheelbase.

Dimensions from back of cab to center of rear axle are 41 11/16 and 57 11/16 in. and from the cowl to

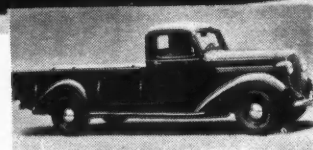
center of rear axle, 30 63/64 and 96 63/64 in. respectively on the 120-in. and 136-in. wheelbase chassis.

The engine has 218.06 cu. in. displacement with 3 3/8-in. bore, 4 1/16-in. stroke and develops 75 h.p. Its

four points of suspension are cushioned in rubber. Other mechanical features of this engine are exhaust valve seat inserts, by-pass thermostat, water distributor tube and full length water jackets.



New 3/4-ton Dodge is shown with panel and express body types



## DETROIT WHEELS

The Detroit Compensating Axle Corp. has announced a new design of dual wheels for any trailing axle application. The wheels rotate independently of each other thus eliminating the scuffing involved in any turn with two rigid wheels traveling unequal distances. There is a simple clutch between the two wheels which locks them together simultaneously with the slightest brake application.

The inner wheel mounts on the original wheel bearings and the hub of the outer wheel telescopes the hub of the inner. They are made to fit standard axles. The claims made for these wheels are: double tire life,

gasoline mileage improved 10 to 20 per cent and increased safety as a result of better handling.

## WILLYS C. O. E.

The new type semi-cab-over-engine panel delivery truck of 1/2-ton capacity is now in production at Willys-Overland Motors, Inc. Unusually large load compartment on a 100-in. wheelbase with a 17-ft. turning radius, more accessible driver's compartment and lightweight body construction are features.

The body is 96 in. long, 63 in. wide and 63 in. from floor to roof. This gives a 206-cu. ft. load

compartment. The body frame is all steel and completely welded, no bolts or rivets being used. Plymetal panels are used on the sides and a compound hardwood floor is used. The driver's compartment is accessible from either side and the seat is an adjustable pedestal. Both doors are the concealed sliding type.

Weight of the complete unit is 2250 lb. It is driven by the Willys four-cylinder engine. The frame is special with K-X reinforcement members. Servicing of the engine is through a hinged panel directly over the engine and the engine may be easily removed. There is an easily accessible spare tire and tool compartment concealed under the floor at the rear of the body.

Detroit Compensating Axle's new dual wheels rotate independently. Fits any trailing axle.



Willys' semi-c.o.e. has a 96-in. body on a 100-in. wheelbase. The steel body frame is welded.

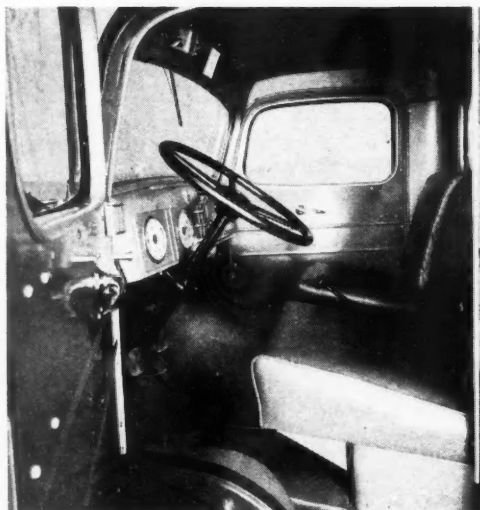




# MAC K

## C.O.E.'s

**Offered in Six New Models, 12,000 to 23,000 Lb. Gross Weights. Model EG is New Conventional Type**



**Top: New cab-over-engine Macks are characterized by streamlined styling.**

**Above: Interior arrangements of the all-metal cabs show careful planning**

**M**ACK TRUCKS, INC., has announced six new cab-over-engine models rated at from 12,000 to 23,000 lb. gross. Corresponding with the light-capacity models, EE, EF, and EG, and the intermediate-capacity models EH, EM, and EQ, these new cab-over-engine trucks are designated respectively as the EEU, EFU, EGU, EHU, EMU, and EQU.

Each one of these six new models is characterized by attractively streamlined lines. The sturdy all-metal cabs are equipped with safety glass throughout and with such deluxe interior fittings as a domelight and an attractive instrument board fitted with clock-type instruments, indirectly lighted. Cushions and backs are of the same high quality as those found in the more expensive models. The easily accessible engine is set forward within the cab, mounted conveniently low, and is covered by an insulated sheet steel housing which is easily removable. To give the operator of the vehicle the maximum room in driving, the engine is also mounted at a slight angle, thereby insuring ample foot room.

The chassis of these trucks accommodate standard body lengths on wheelbases averaging 32 in. shorter than corresponding conventional models. Turning radii and overall lengths are, therefore, correspondingly decreased. Gross vehicle weight distribution of 1/3 on the front and 2/3 on the rear has been accomplished. The EEU, EFU, and EGU are offered in the wheelbase lengths of 107 in., 114 in., 126 in., 144 in., and 162 in.; the EHU, EMU, and EQU in wheelbase lengths—108 in., 114 in., 126 in., 144 in. and 162 in.

All six models are powered by six-cylinder engines; the EEU by a 3½-in. x 4¾-in. engine developing 75 h.p. at 2800 r.p.m.; the EFU by a 3⅝-in. x 4¾-in. engine developing 78 h.p. at 2800 r.p.m.; the EGU by a 3¾-in. x 4¾-in. engine developing 85 h.p. at 2800 r.p.m.; the EHU by a 3⅝-in. x 5-in. engine developing 90 h.p. at 3000 r.p.m.; the EMU by a 3⅝-in. x 5-in. engine

(TURN TO PAGE 46, PLEASE)

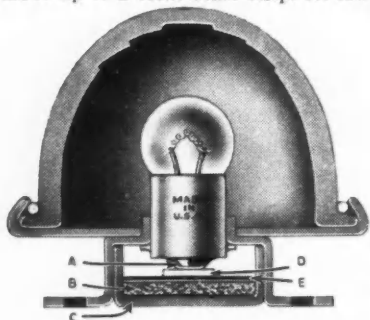


# NEW PRODUCTS ON PARADE



## Do-Ray Three-Way Lite

Designed to meet present-day driving conditions, the new Three-Way Lite has been announced by the Do-Ray Lamp Co. The new No. 1132 is water-proof and dust-proof. There are no taped connections to loosen because the positive wiring assembly is made up of a solid brass strip. As shown



in the illustration: (A) the bulb rests on a cushion of live rubber—eliminating shock; (B) shows the bed of live rubber; (C) the rigid steel back plate; (D) the one piece brass contact strip—no loose connections possible; (E) layer of water-proof bakelite insulation.

## Super-Traction Goodrich Tires



A new line of truck tires is announced by The B. F. Goodrich Co. Goodrich now offers the operator of light equipment a choice of the express type heavy duty commercial for ordinary service or the new line for service where traction is a major requirement, in mud, snow or any off-the-pavement service where the going is tough.

The tire is made in a complete range of sizes. The tread is of an entirely different appearance, its greater depth accounting for its traction qualities.

## Seiberling Vented Tire

Seiberling has introduced a new heavy duty, heat-vented truck and bus tire. The new tire employs a system of air vents to provide an outlet for internally generated heat that otherwise might tear the tire apart. A complete line-up of sizes from 6.00-20 to 10.50-24 is available.

The vents in the shoulder provide an opening which not only sucks and pumps

the heat out of the tire, but also, breaks up the traction wave by relieving the pounding of heavy tread shoulder buttons on the carcass. Instead of having to travel slowly through an inch thickness of tread rubber, the heat in the cushion needs only to travel through 1/16 inch to escape through these vents. Since tread never wears into the holes, recaps can be applied as readily as to conventional tires.

## Metal-Protective Paints

Sherwin-Williams Co., announces new S-W Kem-Metal protective paints which includes Kem-Kromik metal primer, Kem-Elastic metal protective paints and Kem red lead (primer). Their distinguishing feature is the chemically evolved (synthetic) S-W Kem Liquid. Advantages claimed for paints utilizing this Kem Liquid are: (1) More complete exclusion of water and gases from the metal protected. (2) A definitely greater durability. (3) Improved appearance that is maintained in service. Other practical advantages include faster drying, easy brushing, improved appearance.

## USL Fibre-Glass Battery

USL announces a line of oversize batteries with a new type of improved Fibre-Glass insulation. These new batteries are available in various types and sizes for commercial cars, passenger cars, trucks and buses.

The glass fibres as well as the bonding material which permanently holds them together are acid-proof and indestructible.



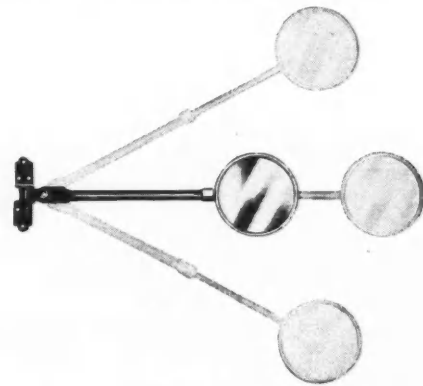
Fibre-Glass insulation increases plate life and maintains higher capacity by preventing the loss of active material from the plates.

## "Linconditioner" Air Filter

A new machine, which conditions air by filtering out dirt particles and which is said to remove approximately 95 per cent of the dirt from the air in the vicinity of grinding, welding and other shop operations, is announced by The Lincoln Electric Co.

## Arrow Rear View Mirror

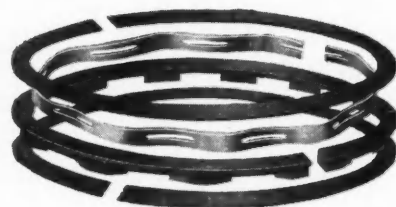
The Arrow Safety Device Co. Inc. has a new rear-view mirror for heavy duty operation. It is an all angle mirror mounted



on a strong arm with a universal mounting bracket. The back of the mirror is copper plated and hermetically sealed and guaranteed against weather and atmospheric conditions. In black \$2.75, in black and chromium trim \$3.00, in full chromium \$6.50.

## Pedrick Steeloil Ring

The Wilkening Mfg. Co., has added to its line of piston rings the Pedrick Auto-Service Steeloil ring. This ring has two



steel segments separated by a cast-iron spacer. A slotted steel inner ring or expander completes the assembly. The new ring will be sold at the same prices as the regular Pedrick oil ring, a list of 49 cents in diameters up to 4 in.

The Steeloil is designed to provide immediate oil control in badly worn engines.

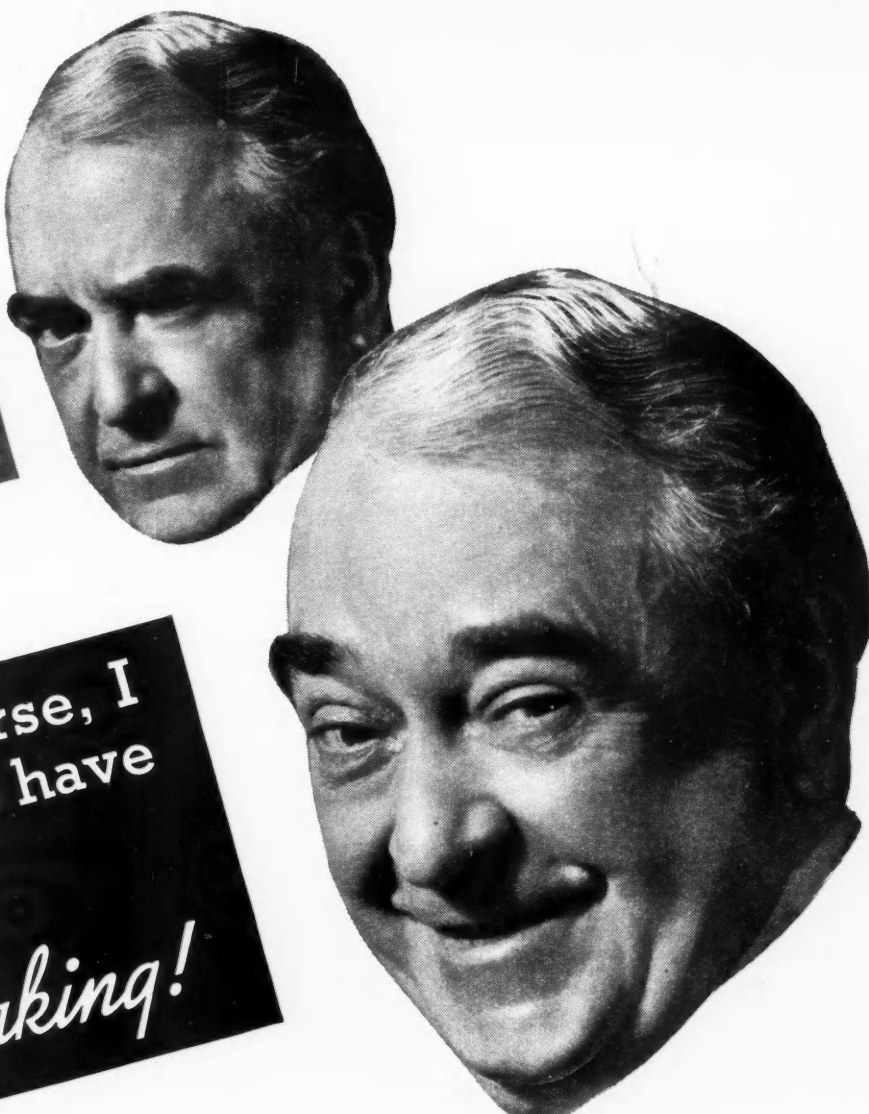
For all-around performance and longest service, Pedrick continues to recommend its hydraulic rings.

## Six New Weaver Compressors

The Weaver Mfg. Co. has announced the addition of six new air compressors, three of which are dual outfits of 6, 8 and 10 hp. The other three are lower priced units. The Dual Outfits have 135 gal. tank on which are mounted two compressor units, each driven by a separate electric motor controlled by a separate pressure switch. The service compressor starts when tank pressure drops from 175 to 145 lb.; and the reserve compressor also goes into action when there is a large demand for air, pulling tank pressure down to 130 lb.

## K-D '38 Catalog

The K-D Lamp Co. announces its 1938 catalog containing important data for every user of safety lighting equipment. It includes a copyrighted series of charts on I.C.C. regulations, approvals, tests, etc.



NO! Our present  
trucks suit me  
fine!

Well, of course, I  
would like to have  
*Hydraulic  
Braking!*

## *Hydraulic Braking Sells Trucks!*

**T**HERE are many newer features in trucks than Hydraulic Braking. But none more potent as a selling asset.

Owners and drivers like Hydraulic Braking—and they'll tell you why! Because they are thoroughly reliable . . . provide a consistently easy, gentle pedal . . . assure smooth equalized stopping . . . retain their adjustment . . . require very

little attention and need no lubrication.

These are the good sound reasons why Hydraulic Braking has won not only public acceptance but public *insistence*. Dealers benefit both in lowered service overhead and heightened sales appeal.

In other words, *Hydraulic Braking sells trucks!*

HYDRAULIC BRAKE CO., Detroit, Mich.

# LOCKHEED HYDRAULIC BRAKES

OFFICIALLY SERVICED THROUGHOUT THE NATION BY WAGNER ELECTRIC CORP.

# NEWS

## SUMMARY

### Truck Production Still Off

Truck production in the United States and Canada during March totaled 52,326 vehicles compared with 51,600 in February and 96,016 in March, 1937. For the first three months of 1938, output totaled 162,223 units, a drop of 33 per cent from the 243,950 units produced in the same period a year ago.

### Eaton to Make Detroit Wheels

On May 12th, negotiations were completed between the Detroit Compensating Axle Corp. and the Eaton Mfg. Co. and as a result the Eaton Mfg. Co. will manufacture the new differential dual wheels for trailing axles which the Detroit Compensating Axle Co. distributes and upon which it holds patents. The Erie Malleable Iron Co. will supply the castings.

### National Highway Committee Urged

A House Joint Resolution, No. 669, by Congressman Cartwright would create a national highway safety committee for the purpose of formulating a program of Federal, state and local safety legislation, enforcement and education as well to set safety standards and study highway safety problems. The resolution has so far been referred to the House Committee on Interstate and Foreign Commerce.



J.D. Murphy (left) and H.L. McNulty, recently named as district sales supervisors of Reo Motor Car Co., with headquarters in Memphis, Tenn., and Omaha, Neb., respectively

### ICC Hears Testimony on Hours

Testimony on which the Interstate Commerce Commission will base its decision to invoke or rescind Division 5's hours of service regulations covering common and contract motor carrier employees was presented to the full Commission on April 25 when J. N. Beall, A.T.A. counsel, and William Green, A. F. of L. head, led a list of a dozen witnesses who submitted the views of both employers and employees. The regulations are scheduled to become effective on July 1 unless the ICC takes steps to the contrary.

The position of the A. F. of L., as outlined by William Green, was that the proposed maximum hours of service are "economically unsound" especially at this time when more than 11 million are out of work. He said the A. F. of L. would prefer no rules at all to those prescribed by the ICC, pointing out that under existing conditions the union can depend upon its economic strength to keep maximum driving hours down whereas, he said, it would be an insurmountable job if the Commission's proposed rules are made effective.

Urging the Commission to make its order effective as scheduled because of "the urgent need for regulation," Mr. Beall held that to delay the effectiveness of the maximum hours of service would be to risk the possibility of never promulgating the rules.

### W. M. Purves Dies

W. M. Purves whose promotion to the post of general sales manager of the Dodge Division of Chrysler Corp. was announced a few weeks ago, died suddenly while enroute to Los Angeles.

### Truck Show Date Changed

The date of the Fifth Annual National Motor Truck Show, formerly scheduled to run from Nov. 9 to 15, inclusive, has been set ahead to coincide with those of the New York National Automobile Show, Nov. 11 to 17, inclusive.

### IHC Vice-presidential Changes

C. R. McDonald has retired as vice-president in charge of manufacturing of the International Harvester Co., after 43 years of active service. He is succeeded by Fowler McCormick, second vice-president, who has been in charge of foreign sales. L. P. Thayer succeeds Mr. McCormick and E. A. Brittenham succeeds Mr. Thayer as director of foreign sales.

### APPOINTMENTS

F. F. Staniford has been elected president of Mack-International Motor Truck Corp. and also vice-president Mack Trucks, Inc.

R. D. Hilty has been elected vice-president of the Mack-International Motor Truck Corp., in charge of export sales. He will also assist in the establishing of domestic dealer organizations.



Robert F. Black, president of White, who has been named chairman of the motor truck committee of the Automobile Manufacturers Association succeeding William F. McAfee

Appointment of V. L. Wanselow, formerly truck and bus tire manager of The B. F. Goodrich Co. in the Chicago district to the western managership of the national accounts sales division is announced.

Park Q. Wray has been named general manager of National Motor Bearings replacement division at Oakland, Calif.



Lothair Teetor, who has been elected to succeed his father as president and general manager of The Perfect Circle Co.

William K. Harrison has been named assistant general manager of Willys Overland Motors, Inc.

G. H. Goehrig, formerly assistant sales manager of the Blackhawk Mfg. Co., has been named sales manager succeeding W. P. Ferris, who has resigned to go into business for himself.

Paul L. Francois has been named assistant sales manager of the R. M. Hollingshead Corp.

### New Truck Registrations by Makes by Months\*

|              |        | Auto-car | Brockway | Chevrolet | Diamond T | Dodge  | Federal | Ford   | G.M.C. | Hudson | Inter-nat'l | Mack  | Plymouth | Reo   | Sterling | Stewart | Studebaker | White Indiana | Willys | Misc. | Total   |
|--------------|--------|----------|----------|-----------|-----------|--------|---------|--------|--------|--------|-------------|-------|----------|-------|----------|---------|------------|---------------|--------|-------|---------|
| January      | 1938   | 129      | 64       | 10,137    | 335       | 3,070  | 118     | 9,114  | 1,746  | 99     | 4,501       | 254   | 668      | 216   | 16       | 27      | 158        | 288           | 176    | 227   | 31,343  |
| January      | 1937   | 130      | 102      | 13,975    | 828       | 3,673  | 199     | 16,230 | 2,749  | 278    | 6,098       | 382   | 208      | 344   | 22       | 89      | 167        | 583           | 125    | 300   | 46,482  |
| February     | 1938   | 95       | 57       | 8,991     | 338       | 2,622  | 109     | 7,687  | 1,401  | 81     | 3,763       | 217   | 562      | 182   | 9        | 19      | 144        | 316           | 138    | 238   | 26,969  |
| February     | 1937   | 112      | 115      | 7,777     | 580       | 4,904  | 205     | 16,100 | 2,937  | 355    | 5,136       | 333   | 692      | 305   | 25       | 101     | 215        | 538           | 57     | 292   | 40,859  |
| March        | 1938   | 110      | 86       | 12,233    | 380       | 3,666  | 136     | 9,898  | 1,965  | 77     | 5,256       | 352   | 769      | 233   | 17       | 31      | 161        | 394           | 174    | 303   | 36,291  |
| March        | 1937   | 179      | 140      | 16,924    | 815       | 6,337  | 236     | 20,396 | 4,122  | 539    | 5,689       | 476   | 1,104    | 494   | 23       | 147     | 465        | 647           | 76     | 299   | 59,088  |
| Three Months | 1938   | 334      | 207      | 31,361    | 1,053     | 9,358  | 363     | 26,699 | 5,112  | 257    | 13,520      | 823   | 1,999    | 681   | 42       | 77      | 463        | 998           | 488    | 768   | 94,603  |
| Three Months | 1937   | 421      | 357      | 38,676    | 2,223     | 14,914 | 640     | 52,716 | 9,859  | 1,172  | 16,923      | 1,221 | 2,004    | 1,133 | 70       | 337     | 847        | 1,768         | 258    | 891   | 146,429 |
| % Change     | 3 Mos. | -21      | -42      | -19       | -53       | -37    | -43     | -49    | -48    | -78    | -20         | -33   | -40      | -40   | -40      | -77     | -45        | -43           | +89    | -14   | -35     |

\* Does not include returns from Wisconsin. All data are comparable.



**"Yours is a risky venture . . .  
storage batteries have no future"**

**SCOFFED AT IN 1888,  
EXIDE TODAY CELEBRATES  
FIFTY YEARS OF ACHIEVEMENT**



**F**IFTY YEARS AGO, when The Electric Storage Battery Co. was formed, many business men were skeptical. Storage batteries, they said, were merely a laboratory experiment.

But critics were promptly silenced by the undeniable fact that the electrical industry was eager for these batteries. Street-car lines were among the first large users, installing battery-operated cars on many routes.

Today, Exides are used by railroads, steamship companies, and aircraft. They not only start our cars, trucks and buses,

but their power is used to haul coal and ore underground, and to handle materials in industrial plants the country over. Exides operate emergency lighting systems in hospitals, schools, theatres, stores, and other buildings. Telephone companies, utility companies, radio stations and motion picture studios depend on these batteries for vital services.

The extent to which business and industry rely on Exide Batteries has made The Electric Storage Battery Co. the world's largest manufacturer of storage

batteries for every purpose. Such a position of leadership is earned and maintained only by unswerving allegiance to the highest manufacturing standards. That is the basis on which Exide Batteries will continue to go forward.

**THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia**  
*The World's Largest Manufacturers of Storage Batteries for Every Purpose*  
Exide Batteries of Canada, Limited, Toronto

## Check Filters

(CONTINUED FROM PAGE 21)

Consequently, if the prospective purchaser wishes to make an intelligent selection, he must do his own testing either by actual road service tests or by laboratory tests. The former method possesses many advantages, but it is too often impracticable.

Whether the testing is done in the laboratory or in service necessitates certain laboratory facilities for inspecting the oil samples withdrawn

at predetermined time intervals. Unfortunately, we do not have a single inspection test which will tell whether the oil is good or bad.

However, the inspections should include neutralization number, precipitation number, carbon residue, naphtha and chloroform insolubles, color, and viscosity. When it is desired to determine whether or not the filter in question removes any of the various addition agents now rather widely used in motor oils additional inspections are necessary. For ex-

ample, the pour point could be employed for determining whether or not the filter removes the pour point depressor.

### Four Types of Laboratory Tests

Many laboratory methods have been suggested but, as yet, no single procedure is universally used. There appear to be at least four different methods for testing filters. Briefly, these are:

1. Employ crankcase drainages which are circulated through the filter undergoing test for a predetermined period of time or until filter clogs.

2. Employ new oil and add a fixed amount of sludge obtained from crankcase drainings periodically and circulate through filter for a predetermined period of time.

3. Employ new oil and add "dirt stock" obtained by centrifuging crankcase drainings on dosages of fixed amounts and at specified intervals of time.

4. Employ new oil and add certain sludge-forming constituents and circulate through filter for a given period of time or until filter clogs.

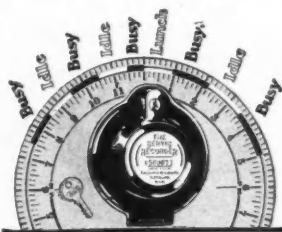
In all cases the pressure at the inlet of the filter and the temperature of the oil in the sump are controlled at predetermined values. Pressures from 25 to 40 lb. gage, and temperatures from 140 to 180 deg. F. are generally recommended.

Since a laboratory test should duplicate rather closely road services, consideration should be given to actual operating conditions and their resulting effects on crankcase oils. I cannot think of any other equipment that is required to perform under more widely varying conditions of temperature, speed, load, and atmospheric than the motor vehicle. It operates in the terrific heat of the tropics and sub-zero weather of the frozen north; in the dry atmosphere of the desert and in wet, foggy atmospheres; and in surroundings so dusty that lights are necessary for day driving—all of these at various loads and speeds.

The extremities of operating conditions might be described as extremely low temperature (cold-running), and very high temperature (hot-running) conditions. It is seldom, of course, that any vehicle operates under either of these two extreme conditions for any appreciable

## EXPLAIN IT to Your Drivers!

• It's a business machine—and its purpose is not to *detect*, but to *prevent*. It keeps trucks from getting into bad habits.



**The Servis Recorder**

### Put This Poster Up Out Back

—tell everybody concerned just what the Servis Recorder is and what it does. It's the

moral effect that's important. A "pound of prevention" is worth a "ton of cure"!

(Actual size of poster is 14" x 18")

## TO OUR TRUCK DRIVERS

### Two Things We Want To Do—

**First:** We want to stay in business for many years to come, and that means we've got to be as efficient as those we compete against. That means that every truck must produce its full day's work — no more and no less.

**Second:** We want each truck driver to receive a square deal, in order that so far as possible each truck will do an equal amount of work, and do it comfortably.

All right. There is only one way to do this. That is, to put on each and every truck a recording device so constructed that the truck itself will record just what it did all day. An accurate record—a fair and square report—a record that nobody can question.

Now then, these records will probably show up a lot of standing time on our trucks. But we know that a large part of this idle time is not the driver's fault at all! There are all sorts of causes for idle truck time. Some of these causes cannot be removed, but a lot of them can! And the only way we can find out is by first getting a record of these delays, a record made by the truck itself.

That's why we are putting on Servis Recorders. This Recorder is already in use on more than 70,000 trucks throughout the world. There is nothing mysterious about this recorder. It's on every truck, in plain sight. It merely records when your truck is operating, and when it is standing. If you as a driver are overworked, it will show it. If you are underworked, it will show that too.

*The Kunkin Co.*



Send for this poster. It's FREE.

**The Service Recorder Co., Cleveland, O**

## PENALIZED FOR "SPEEDING"



## ...by a pokey motor oil!

*HIGH SPEED* was costing this southern mail route operator\* plenty . . .

Day-in-and-day-out, his trucks had to average 50 miles per hour—a speed that played hob with his motor oil!

He had tried "practically every brand of oil"—so he decided on a drastic step. He switched to Gulfpride Motor Oil—the finest oil money can buy.

And, in spite of it being an admittedly "higher-priced" oil per gallon, his costs were literally slashed to the bone! After using it exclusively, he wrote us:

*"... I have not spent one dime for repairs of any kind. The oil (GULFPRIDE) is being drained, flushed and refilled every 1,300 miles, with only one pint consumed for the entire 1,300 miles on each car . . .*

Amazing? Yes—but Gulfpride is a really amazing oil! Day after day, operators of bus, truck and pas-

senger fleets are discovering just such economies after switching to Gulfpride Oil.

For Gulfpride is refined by Gulf's exclusive Alchlor Process—the process that keeps on refining where other processes stop. This patented method digs so much deeper into 100% Pennsylvania, that it gets out as much as 20% more sludge and waste . . .

And the difference shows up at once. *Try it!*

Gulf Oil Corporation—Gulf Refining Company, Pittsburgh, Pennsylvania.

\*A true story from the files of the Gulf Oil Corporation. Name on request.

# Gulfpride

The world's finest motor oil

100% PURE PENNSYLVANIA...IN SEALED CANS ONLY





length of time. Most vehicles operate somewhere between these two extremities, especially for the greater part of the time, in what might be called the intermediate-temperature condition.

#### Sludge Changes with Temperature

Characteristically, the sludges formed under the two extreme conditions are quite different. Similarly, the intermediate-temperature sludges vary widely and possess some of the characteristics of both the high and

low-temperature sludges.

Specifically, the sludge formed in the "average" vehicle usually contains some water, diluent, soot, road and atmospheric dust and oil, which are the chief ingredients of low-temperature sludge; resins asphaltene, lacquers, the so-called "coffee-ground" carbon, and road and atmospheric dust, which are the chief ingredients of high-temperature sludge. Intermediate-temperature sludge will also contain some worn bits of metal, rust and other impuri-

ties which are common to all sludges.

It will be realized that it is a formidable task to design a filter that will effectively filter a material so varied. From observation and the results of some personally conducted tests and from the results of other tests, which I have had the privilege of seeing, I am of the opinion that no single filtering medium used at present possesses properties sufficiently universal as to effect an acceptable performance over the full scale of operating conditions. Therefore, in order to obtain a complete picture of the performance of a filter, I believe it is necessary to employ three test procedures: one to reproduce low-temperature service; one to reproduce high-temperature service, and one to reproduce intermediate-temperature service.

#### Many Mediums Available

It is safe to say, I believe, that practically all mediums known to possess filtering ability have been used or are being used at present. The most used and doubtless the best mediums are cotton waste, slag wool, wool felt, flannel, paper Fuller's earth cellulose fiber, rock wool, felts, granular clay, and glass wool. Since all of these mediums are being used more or less extensively at present, it is obvious that no one is best.

If these mediums were tested fairly, using sludges varying characteristically from one extreme to the other, no one medium would rank first for all tests. Certain of these mediums are very effective in removing soot, such as is found under low-temperature operating conditions, but this same medium has practically no effect in reducing the acidity of the oil, i.e., it is not capable of removing appreciably the naphtha insolubles formed under high-temperature conditions. On the other hand, one or perhaps two of these mediums are quite effective in removing the naphtha insolubles, but less effective in removing soot and water.

Within comparatively recent times there has been a rapid development in the use of chemicals for treating certain of these mediums. This expedient has been resorted to in order to broaden the range of the filtering efficiency of the materials. Unquestionably, the effective filtering scope of some of these mediums has been extended by such treatment, and



**MIDLAND POWER BRAKE KITS**

are expressly engineered for simple installation

ON FORD • CHEVROLET • DODGE • G-M-C • INTERNATIONAL

● When you buy Midland Power Brakes in the handy package, you are assured that each part has been designed for your truck or tractor. You save because fewer parts are required, because every unit and part is the correct length and size, because installation is speeded up. Complete blueprints and instructions furnished.

Specify Midland, the choice of leading fleet operators, and chosen as standard factory equipment by 32 manufacturers of trucks, tractors, and trailers. See your nearest Midland distributor today, or write us direct.

THE MIDLAND STEEL PRODUCTS CO. • 10605 Madison Ave., Cleveland, O.

#### LOOK AT THESE LOW PRICES:

| Kits for 1938 Model: | As low as ★ |
|----------------------|-------------|
| FORD . . . . .       | \$31.60     |
| CHEVROLET . .        | 28.55       |
| DODGE . . . . .      | 28.50       |
| G. M. C. . . . .     | 27.55       |
| INTERNATIONAL        | 31.35       |

★ Installation extra



**MIDLAND**  
(CHRISTENSEN)  
*Power Brakes*

When writing to advertisers please mention Commercial Car Journal

COMMERCIAL CAR JOURNAL  
JUNE, 1938

# OLD FAITHFUL BOILS OVER

*—but it's far hotter  
inside most truck tires*

**That's why tires fail . . . that's why  
Goodrich built a new tire that does  
NOT get dangerously hot**

That world-famous geyser, Yellowstone's Old Faithful, goes on a rampage once an hour. Spouts tons of water into the air. Water steaming hot! But it's cool compared to the temperatures generated inside most truck tires!

Groaning under heavy loads and high speeds, tires get sizzling hot—reach temperatures 70-80-90 degrees above the boiling point of water! Engineers will tell you that the danger line is about 240 degrees. Higher sustained temperatures make tires "grow", cause blow-outs, premature failures.

## NEW TIRE RUNS COOLER

Avoid the risks of heat-speed-load blow-outs. Get the new Goodrich Triple Protected Silvertown. This amazing new tire is scientifically designed to run COOLER, SAFER, and therefore LONGER.

How much safer and longer? To find out, Goodrich punished this new Silvertown on the worst "tire-killer" hauls in the land. And in every test it lasted two and even three times longer than the best tires used before.

## USE NEW KIND OF CORD

Such performance is made possible by a revolutionary new type of cord produced in Goodrich-owned mills. This cord, Hi-Flex, is more compact, stronger, more elastic. It is floated, friction-free, in a thick bed of insulating rubber. Hi-Flex Cord can take the hammering of the highway without losing its strength and elasticity. It doesn't lose its "life", its "spring". That's why the tire does not "grow" and become "flabby".

Because Hi-Flex provides strength without bulk the whole tire is more compact. It runs COOLER.

## EXCLUSIVE WITH GOODRICH

Only Goodrich offers you Hi-Flex Cord, and only Goodrich offers you this money-saving combination:

- 1 PLYFLEX**—a tough outer ply which distributes stresses throughout the tire and prevents local weakness.
- 2 PLY-LOCK**—a new method of locking the plies about the beads, anchoring them in place.
- 3 HI-FLEX CORD**—full-floated in live rubber—cord that retains its strength and protects the tire against getting dangerously hot.

No wonder we can say that sidewall breaks are practically eliminated with Goodrich Silvertowns!

## NO EXTRA COST

Put these tires on your trucks and you don't have to worry about peak loads and high speeds. You can handle any haul safer and cheaper. And remember—you will get premium tire mileage without paying a premium price.

Phone a Goodrich Dealer or Goodrich Silvertown Store for prices.



# Goodrich *Triple Protected* Silvertowns

SPECIFY THESE NEW SILVERTOWN TIRES FOR TRUCKS AND BUSES

doubtless still further improvements will be made along this line. Obviously, not all chemicals possess the necessary characteristics. Furthermore, many of those that do cannot be used because of their harmful effects on the oil. This is especially true with regard to many of the newer oils which usually contain one or more addition agents, such as oiliness compounds, pour inhibitors, viscosity index improvers, antioxidants, and carbon removers. I do not believe, and I doubt if any

of the filter manufacturers believe, it is a duty of the filter to remove these addition agents, if the oil manufacturers add them to their oils. This undoubtedly has reduced to a very few the number of suitable chemicals.

In regard to low-temperature sludge, which contains a liberal amount of water, it is my belief that none of the present filtering mediums will remove any appreciable quantity of water for a reasonable period of service. Some mediums,

such as cellulose fiber, cotton, felt, and others will absorb some water, but they do not possess sufficient capacity to remove any appreciable amount. The most practical way to remedy conditions of this sort is to use all of the available means for raising the engine temperatures, such as radiator coverings, higher-temperature thermostats, and higher idling speeds.

Filters are generally most efficient at the intermediate temperatures, and some are also very efficient at the higher temperatures.

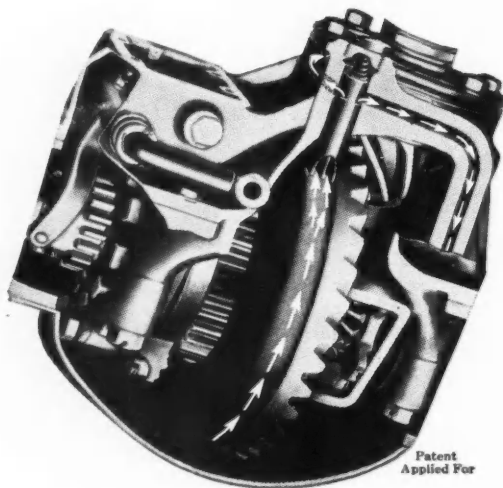
#### Two Cartridges May Be Answer

Since it is a fact that some of these mediums are most effective at higher temperatures than others and vice versa, it may be practicable for manufacturers to provide, say, two cartridges, call them summer and winter or high-temperature and low-temperature. We have summer and winter oils so why not cartridges?

Until a universal filtering medium is discovered, or a method developed for chemically treating some of the present mediums so that they become capable of effectively filtering the oil over the entire operating temperature range, or until two or more cartridges are provided by filter manufacturers, the operator will be confronted with the problem of selecting the right filter for his own particular operating conditions. And, until more reliable performance data are at hand, this probably means he must perform his own tests.

To be specific, it is my opinion that an operator planning a shop or laboratory test should ascertain beforehand the characteristics of the sludge actually formed in his equipment and duplicate it or them, as the case may be, as closely as possible and use this as dirt charging stock. He should also employ pressures and temperatures approximately the same as those of his equipment. Furthermore, the oil should be of the same brand or a mixture of the brands, if more than one is regularly used, in the equipment. The sludge should be added in small dosages at frequent intervals, the total amount of which should be sufficient to cause the oil, when circulated through the bench set-up, with filter by-passed, to possess characteristics approximately the same as those of the oil withdrawn

## EATON *FORCED FLOW* AXLE LUBRICATION



**An advanced method of lubricating the Eaton 2-Speed Axle. Combines the new Eaton Forced Flow system with the conventional "splash" system. Provides instant and thorough distribution of lubricant to all moving parts at all truck speeds. Exceptionally efficient at low speeds where "splash" system alone is inadequate. Reduces friction. Assures longer life of axle and remarkable freedom from repairs. . . . For full explanation send for descriptive folder.**

**EATON MANUFACTURING CO., CLEVELAND, OHIO**

**2 EATON  
SPEED AXLE**  
WITH NEW EATON FORCED FLOW AXLE LUBRICATION



# ORDERS 10

# ... then 14 more!



**Highway Commission of a  
Mid-Western State Proves  
Outstanding Performance of**

## **MARMON-HERRINGTON *All-Wheel-Drive* FORD V-8**

• Road construction jobs won't lag in *this* state. Highways will be kept open for travel—regardless of floods, snow and ice. With these twenty-four Marmon-Herrington *All-Wheel-Drive* Ford trucks, added to their other equipment, work will *keep moving*, no matter how tough the going may be.

After putting ten of these ground-gripping, double-traction *all-wheel-drive* trucks to every gruelling test, last winter—fourteen more were ordered and delivered this spring. The ability of

Marmon-Herrington *all-wheel-drive* Fords to go places on and off the highway, through deep sand, dirt, and snow, *where no conventional-drive truck could possibly go*, was immediately convincing. The low price and operating economy of the Marmon-Herrington *all-wheel-drive* Ford was a factor too. Where budgets are limited, and more work must be done—you can make dollars go twice as far, with Marmon-Herrington *all-wheel-drive* Fords! Ask for literature, today.

**MARMON-HERRINGTON CO., Inc., Factory and General Office, Indianapolis, Ind., U.S.A.**

# **MARMON-HERRINGTON**

# *All-Wheel-Drive* **FORD V-8**

from the equipment when oil changes are made.

Under no circumstances should filter tests be made by employing crankcase drainings from vehicles not equipped with filters and circulating these through the filter for a predetermined period of time, or until the filter clogs. Filters should be judged, obviously, on their ability to maintain oil in good condition, and not on their ability to clean up dirty oil, nor on their capacity to absorb dirt. When this method is employed,

there is a tendency, in most cases, for the surfaces of the filtering element, which the oil first comes into contact with, to become coated with sludge. This coating usually hinders the free circulation of oil through the element, thereby rendering it incapable of normal filtering action.

#### Highway Safety

A "Bibliography on Highway Safety" covering the period from 1928 to 1937 has been prepared by the Bureau of Public Roads and is available from the Department of Agriculture, Washington, D. C.

#### CCJ Quiz Answers

1. Change the crankcase oil. (A high neutralization number is indicative of a high acid content in the engine lubricant.)
2. Motionless (At the time of contact the point is standing still relative to the road, therefore it is motionless.)
3. .001 to .003 in. (The thickness of human hair falls in this range, the average being about .0015 in.)
4. New York (Port of Authority Building, 15th St. and 8th Avenue.)
5. 653 (Number of standard models listed in April, 1938, CCJ.)
6. 3 tons (Authority—Philadelphia Zoological Gardens.)
7. Coal (The first diesel used powdered coal blown in with a draft to make a combustible gas.)
8. 20 m.p.h. (Read it again.)
9.  $\frac{1}{2}$  crankshaft speed (Count the teeth on a camshaft gear and compare it with a mating crankshaft gear or better still look up the explanation of the four-stroke cycle.)
10. A.M.A. (Automobile Manufacturers Association, of which Mr. Reeves has long been the able general manager.)

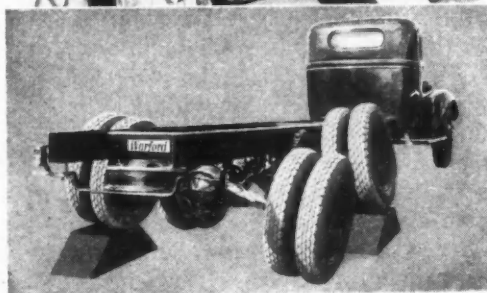
# Fleet Owners!

## Warford BRINGS YOU

(A NEW "DUAL-AXLE" DRIVE MULTI-WHEELER)



POWERED BY  
CHEVROLET



The economy and safety features of the WARFORD MULTI-WHEELER make it a most outstanding unit in heavy hauling truck operations. It is THE unit that will cut your costs per mile and increase profits.

**NEWS TO FLEET OWNERS.**—The new Warford helical gear underdrive transmission for the Chevrolet truck is now available.

For further information about the Warford Multi-Wheeler and the new Warford helical gear underdrive transmission see your local Chevrolet dealer or nearest Warford distributor.

**MORE TONS • MORE MILES • LESS COST**

**THE WARFORD CORPORATION**  
44 WHITEHALL STREET, NEW YORK, N. Y.

#### Mack C.O.E.

(CONTINUED FROM PAGE 35)

developing 90 h.p. at 3000 r.p.m.; and the EQU by a  $37\frac{1}{8}$ -in. x 5-in. engine developing 100 h.p. at 2800 r.p.m. In models EEU, EFU, EGU, EHU, EMU, and EQU, total piston displacement is respectively 253 cu.in., 271 cu.in., 290 cu.in., 309.6 cu.in., 309.6 cu.in., and 353.8 cu.in. The crankshafts of all these new models have seven bearings and are fully counterweighted. Crankshafts on models EHU, EMU and EQU are case-hardened. Cylinders are all cast in block of chrome-nickel steel with detachable one-piece heads.

Drive on all six models is from a dry, single plate clutch, being on the models EEU and EFU through a four-speed, selective, unit-with-engine transmission, a five-speed transmission direct in fifth being available at extra cost. On the models, EGU, EHU, EMU, and EQU, drive is through a five-speed direct unit-with-engine transmission. In these latter models an overgeared fifth speed is optional. Final drive on all models is of the single reduction type with the exception of the model EQU on which Dual Reduction drive is used. The models EFU and EGU have a double reduction axle available at extra charge. All rear axles are full-

# TRUCK TIRES

It is and has been our job to produce truck tires which give longer mileage, more reliability and greater economy than tires of other makes.

Today Lee DeLuxe Tires are masters of wear, tear and hard work.

## These Factors Have Contributed:

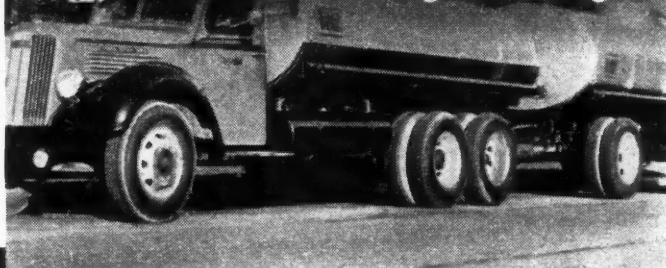
- 1—Stronger and more flexible beads.
- 2—Tougher, longer wearing treads.
- 3—Cooler running carcasses of Lee Double-Life Cord.
- 4—Finer workmanship by craftsmen with many years of experience.

Lubricated plies actually "lubricate" the plies by allowing them to flex under such strains as those caused by the application of brakes on heavy trucks with a resulting minimum of internal friction.



In all Lee Truck Tires, there is the additional safeguard of  
**Lubricated Plies.**

These are thin sheets of specially compounded rubber placed between each ply in addition to the regular coating.



You see Lee Tires on a great many of the big fleets of the country.

We service National Accounts promptly everywhere. Eighteen thousand dealers.

# LEE *Conshohocken* Tires

GENERAL OFFICE  
Conshohocken, Pa.

COPYRIGHT 1938 LEE TIRE & RUBBER CO.

FACTORIES: Conshohocken, Pa.  
Youngstown, Ohio

COMMERCIAL CAR JOURNAL  
JUNE, 1938

*When writing to advertisers please mention Commercial Car Journal*



floating.

The four-wheel footbrakes on all six models are of the internal type, those on the four smaller models being hydraulic while on the two larger models they are direct mechanical. All have vacuum boosters as standard except the EEU on which it is offered as an extra. All six models have chassis frames of pressed carbon steel. Cross members for all models are five in number, three of which are of the box girder type.

Springs on the models EEU, EFU,

and EGU are 42 in. x  $2\frac{1}{4}$  in. in front, 51 in. x  $2\frac{1}{2}$  in. in the rear, and helpers are  $34\frac{1}{4}$  in. x  $2\frac{1}{2}$  in. On the model EHU, front springs are 44 in. x  $2\frac{1}{2}$  in., rear are 54 in. x 3 in., and helpers are 36 in. x 3 in. On the models EMU and EQU front springs are  $42\frac{1}{2}$  in. x  $2\frac{1}{2}$  in., rear springs are 53 in. x  $3\frac{1}{2}$  in., and helpers are 38 in. x  $3\frac{1}{2}$  in. An exclusive feature of the spring suspension on all these six models is the use of Mack rubber Shock Insulators at all spring ends. By their use, both

body and load are insulated against road shocks, and the necessity of lubrication at spring ends is eliminated.

#### Model EG Is Conventional

In the 16,000 lb. gross range Mack has placed in production the conventional new model EG. Offered in the wheelbase lengths of  $132\frac{1}{2}$  in.,  $156\frac{1}{2}$  in.,  $174\frac{1}{2}$  in. and  $192\frac{1}{2}$  in., it is characterized by the same refined type of streamlined styling found in the models EE and EF. It has the same cab and fittings as the companion models.

The EG is powered by a six-cylinder engine with  $3\frac{3}{4}$ -in. x  $4\frac{3}{8}$ -in. bore and stroke developing 85 h.p. at 2800 r.p.m. Total piston displacement is 290 cu.in. It has such features as a drop-forged, counterbalanced crankshaft with seven main bearings, chrome-nickel cylinder block, directed water circulation to exhaust valves, timing drive by gears, and exhaust valve seat inserts. The five-speed transmission of the model EG is offered as standard. It is of extra-large size and has long wearing, case-hardened, heat-treated gears. Final drive is of the single-reduction type and the rear axle is full-floating. A double-reduction axle is available at slight extra cost. Standard ratios are 4.85, 5.83, or 6.80. Footbrakes are of the internal hydraulic type, vacuum-booster actuated, and total braking area is 416 sq. in.

Frame is of highest grade carbon steel, braced by five cross members, three being of the box-girder type. Springs are 42 in. x  $2\frac{1}{4}$  in. in front, 51 in. x  $2\frac{1}{2}$  in. in the rear, and helpers are  $34\frac{1}{4}$  in. x  $2\frac{1}{2}$  in. The spring suspension is featured by the use of Mack rubber Shock Insulators at all spring ends. By their use both body and load are insulated against road shocks and the necessity of lubricating at spring ends is eliminated.

#### PMTA Resolutions

The Pennsylvania Motor Truck Association is sponsoring a movement to change the vehicle registration date in Pennsylvania from Jan. 1 to March 31.

The association has also gone on record as favoring the continuance, by the Public Utility Commission of Pennsylvania, of its policy of full regulation over collection and delivery service as set forth in the decision of the commission in complaint of Public Utility Commission of Pennsylvania vs. Railway Express Agency.

COMMERCIAL CAR JOURNAL  
JUNE, 1938



# The Symbol

OF  
**TIME-TESTED  
QUALITY**



## VEHICLE HARDWARE

Standard Eberhard items for almost every conceivable truck-building contingency—and every one has met the rigorous test of long, hard service. Eberhard designs for all sizes of commercial vehicles—from the light delivery wagon to the mammoth cross-country vans, refrigerators and buses.

Door locks, hinges, rope fastenings, seat hardware, door holders, handles, latches, door controls—and a multitude of small and miscellaneous items.



## WHEELS and AXLES

Axle units for trailers and portable equipment of all sorts—tractor and implement wheels—springs, hubs and brake drums.

**EBERHARD MANUFACTURING CO.**  
Division of the Eastern Malleable Iron Co.  
CLEVELAND, OHIO

# **EBERHARD**

## **AUTOMOTIVE HARDWARE**

COMPLETE DESCRIPTIVE LITERATURE  
ON REQUEST



# FOR HEAVIER HAULING AT LIGHTER COST!

Brute power to handle the toughest loads... rugged dependability to maintain rigid schedules... built-in stamina to stay on the road and out of the repair shop. They all add up to profitable hauling. And Mack qualifies on every one of these counts. Remember, in addition to heavy-duty money-savers, Mack now offers 3 new lighter trucks — the lowest-priced Macks in history. See the complete Mack line!



**PERFORMANCE COUNTS!**

MACK TRUCKS, INCORPORATED, NEW YORK, N. Y.

# LINCOLN LUBRICATING EQUIPMENT

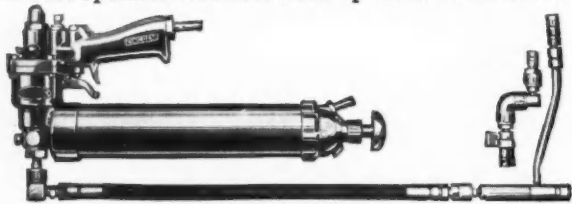
## *covers a* Complete Range



LUBMASTER - Model 291

The powerful, rugged Lincoln Lubmaster (illustrated above) is a large capacity, high pressure chassis lubricant unit designed so that pump lifts lubricant from original 400 lb. drum. This stationary unit will serve six or seven outlets and is ideal for the requirements of the largest of fleets.

Lincoln Airline Lubriguns (illustrated below) enjoy the reputation of being the fastest, most reliable guns of this type ever produced. Convenient to handle... Never tire the operator... Built to stand up under severe service.



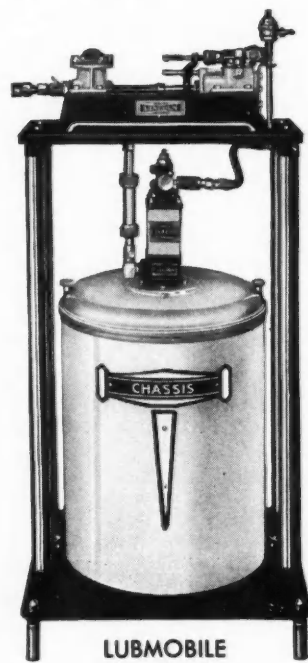
Model 101-C



MOTOR OIL DISPENSER  
Model 497

Model 497 (shown above) meets the demand for an oil dispensing unit that enables operator to fill a crankcase with oil as rapidly as the modern gasoline pump fills the gas tank... There is a Lincoln jobber near you... Ask him for details, or write us.

The Lincoln Lubmobile (illustrated below) is a stationary unit. It operates on the "two-stage" principle. Primer pump lifts lubricant from the original 100 lb. container to the chamber of the high pressure pump which delivers it under high pressure to the control valve. Handles chassis, fluid or fibrous lubricants, serves up to three outlets.



LUBMOBILE  
Model 283

## LINCOLN ENGINEERING COMPANY

PIONEER BUILDERS OF LUBRICATING EQUIPMENT

GENERAL OFFICES, ST. LOUIS, MO.

FACTORIES: ST. LOUIS, MO., DETROIT, MICH.



# THICK

# Table

**The Specifications Table has been brought up to date in this issue from data supplied by truck manufacturers**

## 3a) Ford—Retail list price at Dearborn

O—Bendix front. Own rear.  
u or Bud—Buda.  
at—Caterpillar. Cl or Cla—Clark.  
o—Covert. Con—Continental.  
um—Cummins—Diesel  
at—Eaton. Fu—Fuller.  
—Ford  
a S—Hall Scott

—Cast alloy iron.  
A—American Car Fdry.  
—Centrifuge. D—Dayton.

**F**—Forward unit of Rear Axle Group.  
**FR**—Rear Unit of Rear Axle Group.  
**R**—Forward and rear units of Rear axle Group.  
**F**—Front Axle and Forward unit of Rear Axle Group.  
**FR**—Front axle and rear unit of rear axle group.  
 All wheels.

[illegible]



### in Specifications.

## New Models or

**or export only.**

... & Cab price

and/or local tax

does not include

See all Federal Tax

**1 - 1 Point: 0-1**

2000

•

7





† Rear 32 x 6. †† Rear 7.50/16. (E) For export only.

| 76 | 77 | 78 | 79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 | 141 | 142 | 143 | 144 | 145 | 146 | 147 | 148 | 149 | 150 | 151 | 152 | 153 | 154 | 155 | 156 | 157 | 158 | 159 | 160 | 161 | 162 | 163 | 164 | 165 | 166 | 167 | 168 | 169 | 170 | 171 | 172 | 173 | 174 | 175 | 176 | 177 | 178 | 179 | 180 | 181 | 182 | 183 | 184 | 185 | 186 | 187 | 188 | 189 | 190 | 191 | 192 | 193 | 194 | 195 | 196 | 197 | 198 | 199 | 200 | 201 | 202 | 203 | 204 | 205 | 206 | 207 | 208 | 209 | 210 | 211 | 212 | 213 | 214 | 215 | 216 | 217 | 218 | 219 | 220 | 221 | 222 | 223 | 224 | 225 | 226 | 227 | 228 | 229 | 230 | 231 | 232 | 233 | 234 | 235 | 236 | 237 | 238 | 239 | 240 | 241 | 242 | 243 | 244 | 245 | 246 | 247 | 248 | 249 | 250 | 251 | 252 | 253 | 254 | 255 | 256 | 257 | 258 | 259 | 260 | 261 | 262 | 263 | 264 | 265 | 266 | 267 | 268 | 269 | 270 | 271 | 272 | 273 | 274 | 275 | 276 | 277 | 278 | 279 | 280 | 281 | 282 | 283 | 284 | 285 | 286 | 287 | 288 | 289 | 290 | 291 | 292 | 293 | 294 | 295 | 296 | 297 | 298 | 299 | 300 | 301 | 302 | 303 | 304 | 305 | 306 | 307 | 308 | 309 | 310 | 311 | 312 | 313 | 314 | 315 | 316 | 317 | 318 | 319 | 320 | 321 | 322 | 323 | 324 | 325 | 326 | 327 | 328 | 329 | 330 | 331 | 332 | 333 | 334 | 335 | 336 | 337 | 338 | 339 | 340 | 341 | 342 | 343 | 344 | 345 | 346 | 347 | 348 | 349 | 350 | 351 | 352 | 353 | 354 | 355 | 356 | 357 | 358 | 359 | 360 | 361 | 362 | 363 | 364 | 365 | 366 | 367 | 368 | 369 | 370 | 371 | 372 | 373 | 374 | 375 | 376 | 377 | 378 | 379 | 380 | 381 | 382 | 383 | 384 | 385 | 386 | 387 | 388 | 389 | 390 | 391 | 392 | 393 | 394 | 395 | 396 | 397 | 398 | 399 | 400 | 401 | 402 | 403 | 404 | 405 | 406 | 407 | 408 | 409 | 410 | 411 | 412 | 413 | 414 | 415 | 416 | 417 | 418 | 419 | 420 | 421 | 422 | 423 | 424 | 425 | 426 | 427 | 428 | 429 | 430 | 431 | 432 | 433 | 434 | 435 | 436 | 437 | 438 | 439 | 440 | 441 | 442 | 443 | 444 | 445 | 446 | 447 | 448 | 449 | 450 | 451 | 452 | 453 | 454 | 455 | 456 | 457 | 458 | 459 | 460 | 461 | 462 | 463 | 464 | 465 | 466 | 467 | 468 | 469 | 470 | 471 | 472 | 473 | 474 | 475 | 476 | 477 | 478 | 479 | 480 | 481 | 482 | 483 | 484 | 485 | 486 | 487 | 488 | 489 | 490 | 491 | 492 | 493 | 494 | 495 | 496 | 497 | 498 | 499 | 500 | 501 | 502 | 503 | 504 | 505 | 506 | 507 | 508 | 509 | 510 | 511 | 512 | 513 | 514 | 515 | 516 | 517 | 518 | 519 | 520 | 521 | 522 | 523 | 524 | 525 | 526 | 527 | 528 | 529 | 530 | 531 | 532 | 533 | 534 | 535 | 536 | 537 | 538 | 539 | 540 | 541 | 542 | 543 | 544 | 545 | 546 | 547 | 548 | 549 | 550 | 551 | 552 | 553 | 554 | 555 | 556 | 557 | 558 | 559 | 560 | 561 | 562 | 563 | 564 | 565 | 566 | 567 | 568 | 569 | 570 | 571 | 572 | 573 | 574 | 575 | 576 | 577 | 578 | 579 | 580 | 581 | 582 | 583 | 584 | 585 | 586 | 587 | 588 | 589 | 590 | 591 | 592 | 593 | 594 | 595 | 596 | 597 | 598 | 599 | 600 | 601 | 602 | 603 | 604 | 605 | 606 | 607 | 608 | 609 | 610 | 611 | 612 | 613 | 614 | 615 | 616 | 617 | 618 | 619 | 620 | 621 | 622 | 623 | 624 | 625 | 626 | 627 | 628 | 629 | 630 | 631 | 632 | 633 | 634 | 635 | 636 | 637 | 638 | 639 | 640 | 641 | 642 | 643 | 644 | 645 | 646 | 647 | 648 | 649 | 650 | 651 | 652 | 653 | 654 | 655 | 656 | 657 | 658 | 659 | 660 | 661 | 662 | 663 | 664 | 665 | 666 | 667 | 668 | 669 | 670 | 671 | 672 | 673 | 674 | 675 | 676 | 677 | 678 | 679 | 680 | 681 | 682 | 683 | 684 | 685 | 686 | 687 | 688 | 689 | 690 | 691 | 692 | 693 | 694 | 695 | 696 | 697 | 698 | 699 | 700 | 701 | 702 | 703 | 704 | 705 | 706 | 707 | 708 | 709 | 710 | 711 | 712 | 713 | 714 | 715 | 716 | 717 | 718 | 719 | 720 | 721 | 722 | 723 | 724 | 725 | 726 | 727 | 728 | 729 | 730 | 731 | 732 | 733 | 734 | 735 | 736 | 737 | 738 | 739 | 740 | 741 | 742 | 743 | 744 | 745 | 746 | 747 | 748 | 749 | 750 | 751 | 752 | 753 | 754 | 755 | 756 | 757 | 758 | 759 | 760 | 761 | 762 | 763 | 764 | 765 | 766 | 767 | 768 | 769 | 770 | 771 | 772 | 773 | 774 | 775 | 776 | 777 | 778 | 779 | 780 | 781 | 782 | 783 | 784 | 785 | 786 | 787 | 788 | 789 | 790 | 791 | 792 | 793 | 794 | 795 | 796 | 797 | 798 | 799 | 800 | 801 | 802 | 803 | 804 | 805 | 806 | 807 | 808 | 809 | 810 | 811 | 812 | 813 | 814 | 815 | 816 | 817 | 818 | 819 | 820 | 821 | 822 | 823 | 824 | 825 | 826 | 827 | 828 | 829 | 830 | 831 | 832 | 833 | 834 | 835 | 836 | 837 | 838 | 839 | 840 | 841 | 842 | 843 | 844 | 845 | 846 | 847 | 848 | 849 | 850 | 851 | 852 | 853 | 854 | 855 | 856 | 857 | 858 | 859 | 860 | 861 | 862 | 863 | 864 | 865 | 866 | 867 | 868 | 869 | 870 | 871 | 872 | 873 | 874 | 875 | 876 | 877 | 878 | 879 | 880 | 881 | 882 | 883 | 884 | 885 | 886 | 887 | 888 | 889 | 890 | 891 | 892 | 893 | 894 | 895 | 896 | 897 | 898 | 899 | 900 | 901 | 902 | 903 | 904 | 905 | 906 | 907 | 908 | 909 | 910 | 911 | 912 | 913 | 914 | 915 | 916 | 917 | 918 | 919 | 920 | 921 | 922 | 923 | 924 | 925 | 926 | 927 | 928 | 929 | 930 | 931 | 932 | 933 | 934 | 935 | 936 | 937 | 938 | 939 | 940 | 941 | 942 | 943 | 944 | 945 | 946 | 947 | 948 | 949 | 950 | 951 | 952 | 953 | 954 | 955 | 956 | 957 | 958 | 959 | 960 | 961 | 962 | 963 | 964 | 965 | 966 | 967 | 968 | 969 | 970 | 971 | 972 | 973 | 974 | 975 | 976 | 977 | 978 | 979 | 980 | 981 | 982 | 983 | 984 | 985 | 986 | 987 | 988 | 989 | 990 | 991 | 992 | 993 | 994 | 995 | 996 | 997 | 998 | 999 | 1000 | 1001 | 1002 | 1003 | 1004 | 1005 | 1006 | 1007 | 1008 | 1009 | 1010 | 1011 | 1012 | 1013 | 1014 | 1015 | 1016 | 1017 | 1018 | 1019 | 1020 | 1021 | 1022 | 1023 | 1024 | 1025 | 1026 | 1027 | 1028 | 1029 | 1030 | 1031 | 1032 | 1033 | 1034 | 1035 | 1036 | 1037 | 1038 | 1039 | 1040 | 1041 | 1042 | 1043 | 1044 | 1045 | 1046 | 1047 | 1048 | 1049 | 1050 | 1051 | 1052 | 1053 | 1054 | 1055 | 1056 | 1057 | 1058 | 1059 | 1060 | 1061 | 1062 | 1063 | 1064 | 1065 | 1066 | 1067 | 1068 | 1069 | 1070 | 1071 | 1072 | 1073 | 1074 | 1075 | 1076 | 1077 | 1078 | 1079 | 1080 | 1081 | 1082 | 1083 | 1084 | 1085 | 1086 | 1087 | 1088 | 1089 | 1090 | 1091 | 1092 | 1093 | 1094 | 1095 | 1096 | 1097 | 1098 | 1099 | 1100 | 1101 | 1102 | 1103 | 1104 | 1105 | 1106 | 1107 | 1108 | 1109 | 1110 | 1111 | 1112 | 1113 | 1114 | 1115 | 1116 | 1117 | 1118 | 1119 | 1120 | 1121 | 1122 | 1123 | 1124 | 1125 | 1126 | 1127 | 1128 | 1129 | 1130 | 1131 | 1132 | 1133 | 1134 | 1135 | 1136 | 1137 | 1138 | 1139 | 1140 | 1141 | 1142 | 1143 | 1144 | 1145 | 1146 | 1147 | 1148 | 1149 | 1150 | 1151 | 1152 | 1153 | 1154 | 1155 | 1156 | 1157 | 1158 | 1159 | 1160 | 1161 | 1162 | 1163 | 1164 | 1165 | 1166 | 1167 | 1168 | 1169 | 1170 | 1171 | 1172 | 1173 | 1174 | 1175 | 1176 | 1177 | 1178 | 1179 | 1180 | 1181 | 1182 | 1183 | 1184 | 1185 | 1186 | 1187 | 1188 | 1189 | 1190 | 1191 | 1192 | 1193 | 1194 | 1195 | 1196 | 1197 | 1198 | 1199 | 1200 | 1201 | 1202 | 1203 | 1204 | 1205 | 1206 | 1207 | 1208 | 1209 | 1210 | 1211 | 1212 | 1213 | 1214 | 1215 | 1216 | 1217 | 1218 | 1219 | 1220 | 1221 | 1222 | 1223 | 1224 | 1225 | 1226 | 1227 | 1228 | 1229 | 1230 | 1231 | 1232 | 1233 | 1234 | 1235 | 1236 | 1237 | 1238 | 1239 | 1240 | 1241 | 1242 | 1243 | 1244 | 1245 | 1246 | 1247 | 1248 | 1249 | 1250 | 1251 | 1252 | 1253 | 1254 | 1255 | 1256 | 1257 | 1258 | 1259 | 1260 | 1261 | 1262 | 1263 | 1264 | 1265 | 1266 | 1267 | 1268 | 1269 | 1270 | 1271 | 1272 | 1273 | 1274 | 1275 | 1276 | 1277 | 1278 | 1279 | 1280 | 1281 | 1282 | 1283 | 1284 | 1285 | 1286 | 1287 | 1288 | 1289 | 1290 | 1291 | 1292 | 1293 | 1294 | 1295 | 1296 | 1297 | 1298 | 1299 | 1300 | 1301 | 1302 | 1303 | 1304 | 1305 | 1306 | 1307 | 1308 | 1309 | 1310 | 1311 | 1312 | 1313 | 1314 | 1315 | 1316 | 1317 | 1318 | 1319 | 1320 | 1321 | 1322 | 1323 | 1324 | 1325 | 1326 | 1327 | 1328 | 1329 | 1330 | 1331 | 1332 | 1333 | 1334 | 1335 | 1336 | 1337 | 1338 | 1339 | 1340 | 1341 | 1342 | 1343 | 1344 | 1345 | 1346 | 1347 | 1348 | 1349 | 1350 | 1351 | 1352 | 1353 | 1354 | 1355 | 1356 | 1357 | 1358 | 1359 | 1360 | 1361 | 1362 | 1363 | 1364 | 1365 | 1366 | 1367 | 1368 | 1369 | 1370 | 1371 | 1372 | 1373 | 1374 | 1375 | 1376 | 1377 | 1378 | 1379 | 1380 | 1381 | 1382 | 1383 | 1384 | 1385 | 1386 | 1387 | 1388 | 1389 | 1390 | 1391 | 1392 | 1393 | 1394 | 1395 | 1396 | 1397 | 1398 | 1399 | 1400 | 1401 | 1402 | 1403 | 1404 | 1405 | 1406 | 1407 | 1408 | 1409 | 1410 | 1411 | 1412 | 1413 | 1414 | 1415 | 1416 | 1417 | 1418 | 1419 | 1420 | 1421 | 1422 | 1423 | 1424 | 1425 | 1426 | 1427 | 1428 | 1429 | 1430 | 1431 | 1432 | 1433 | 1434 | 1435 | 1436 | 1437 | 1438 | 1439 | 1440 | 1441 | 1442 | 1443 | 1444 | 1445 | 1446 | 1447 | 1448 | 1449 | 1450 | 1451 | 1452 | 1453 | 1454 | 1455 | 1456 | 1457 | 1458 | 1459 | 1460 | 1461 | 1462 | 1463 | 1464 | 1465 | 1466 | 1467 | 1468 | 1469 | 1470 | 1471 | 1472 | 1473 | 1474 | 1475 | 1476 | 1477 | 1478 | 1479 | 1480 | 1481 | 1482 | 1483 | 1484 | 1485 | 1486 | 1487 | 1488 | 1489 | 1490 | 1491 | 1492 | 1493 | 1494 | 1495 | 1496 | 1497 | 1498 | 1499 | 1500 | 1501 | 1502 | 1503 | 1504 | 1505 | 1506 | 1507 | 1508 | 1509 | 1510 | 1511 | 1512 | 1513 | 1514 | 1515 | 1516 | 1517 | 1518 | 1519 | 1520 | 1521 | 1522 | 1523 | 1524 | 1525 | 1526 | 1527 | 1528 | 1529 | 1530 | 1531 | 1532 | 1533 | 1534 | 1535 | 1536 | 1537 | 1538 | 1539 | 1540 | 1541 | 1542 | 1543 |  |
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| Line Number | MAKE AND MODEL    | GENERAL (See Keynote) |                    |                                     |                        | TIRE SIZES              |                         |                   |                | ENGINE DETAILS           |              |             |                | TRANSMISSION   |            |        |                      | REAR AXLE         |                | FRONT AXLE    | BRAKES         |               |                |               | FRAME          |               |         |               |                            |                      |      |          |   |
|-------------|-------------------|-----------------------|--------------------|-------------------------------------|------------------------|-------------------------|-------------------------|-------------------|----------------|--------------------------|--------------|-------------|----------------|----------------|------------|--------|----------------------|-------------------|----------------|---------------|----------------|---------------|----------------|---------------|----------------|---------------|---------|---------------|----------------------------|----------------------|------|----------|---|
|             |                   | Chassis Price         | Standard Wheelbase | Gross Vehicle Weight with Max. W.B. | Chassis Wt. (Stripped) | Standard Front and Rear | Dual rear S-single rear | Maximum Tire Size | Make and Model | No. of Cylinders, Stroke | Displacement | Comp. Ratio | Torque lb. ft. | H.P. at R.P.M. | Max. Brake | Length | Number, Diameter and | Governor Standard | Make and Model | Forward Spd's | Make and Model | Gear and Type | Drive & Torque | Range in High | Make and Model | Make Location | Service | Hand Location | C-A Dimensions (Std. W.B.) | Side Rail Dimensions | Type |          |   |
| 1           | Plymouth (*) PT57 | 560                   | 116                | 116                                 | 4000                   | 1850                    | 6.00/16S                | 6.00/16S          | Owa            | 6-3x4                    | 201          | 6.7         | 145            | 70-3000        | 4          | 2-3x10 | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 3.73-4.78   | Owa            | O41H          | 148     | 251           | C                          | XL                   | 18   | 5x10 3/4 | C |
| 2           | Reo (*)           | 637                   | 114                | 120                                 | ...                    | 1973                    | 6.00/16S                | 6.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 3           | Reo (*)           | 680                   | 114                | 120                                 | ...                    | 2063                    | 6.00/16S                | 6.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 4           | Reo (*)           | 705                   | 114                | 120                                 | ...                    | 2081                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 5           | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 6           | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 7           | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 8           | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 9           | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 10          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 11          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 12          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 13          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 14          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 15          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 16          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 17          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 18          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 19          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 20          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 21          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 22          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 23          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 24          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 25          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 26          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 27          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 28          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 29          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 30          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 31          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 32          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 33          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 34          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 35          | Reo (*)           | 780                   | 114                | 120                                 | ...                    | 2171                    | 6.50/16S                | 7.50/16           | Owa            | 6-3x4                    | 140          | 5.4         | 98             | 42-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 36          | Stewart           | 595                   | 117                | 123                                 | ...                    | 2190                    | 6.00/16S                | 7.50/16           | Con            | 4-3x4                    | 162          | 5.7         | 120            | 50-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 37          | Stewart           | 595                   | 117                | 123                                 | ...                    | 2190                    | 6.00/16S                | 7.50/16           | Con            | 4-3x4                    | 162          | 5.7         | 120            | 50-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 38          | Stewart           | 595                   | 117                | 123                                 | ...                    | 2190                    | 6.00/16S                | 7.50/16           | Con            | 4-3x4                    | 162          | 5.7         | 120            | 50-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 39          | Stewart           | 595                   | 117                | 123                                 | ...                    | 2190                    | 6.00/16S                | 7.50/16           | Con            | 4-3x4                    | 162          | 5.7         | 120            | 50-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 40          | Stewart           | 595                   | 117                | 123                                 | ...                    | 2190                    | 6.00/16S                | 7.50/16           | Con            | 4-3x4                    | 162          | 5.7         | 120            | 50-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 41          | Stewart           | 595                   | 117                | 123                                 | ...                    | 2190                    | 6.00/16S                | 7.50/16           | Con            | 4-3x4                    | 162          | 5.7         | 120            | 50-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 42          | Stewart           | 595                   | 117                | 123                                 | ...                    | 2190                    | 6.00/16S                | 7.50/16           | Con            | 4-3x4                    | 162          | 5.7         | 120            | 50-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           | 3              | Owa           | Hy             | H 4.55-4.90   | Owa            | L41H          | 198     | 242           | C                          | XL                   | 19   | 5x10 3/4 | C |
| 43          | Stewart           | 595                   | 117                | 123                                 | ...                    | 2190                    | 6.00/16S                | 7.50/16           | Con            | 4-3x4                    | 162          | 5.7         | 120            | 50-2800        | 3          | 3x10   | 3                    | 3x10              | N              | Owa           |                |               |                |               |                |               |         |               |                            |                      |      |          |   |



| Model | Year | Price  | Options | Engine | Transmission | Drivetrain | Chassis | Body | Notes |
|-------|------|--------|---------|--------|--------------|------------|---------|------|-------|
| 119   | 1938 | 119.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 120   | 1938 | 120.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 121   | 1938 | 121.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 122   | 1938 | 122.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 123   | 1938 | 123.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 124   | 1938 | 124.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 125   | 1938 | 125.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 126   | 1938 | 126.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 127   | 1938 | 127.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 128   | 1938 | 128.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 129   | 1938 | 129.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 130   | 1938 | 130.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 131   | 1938 | 131.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 132   | 1938 | 132.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 133   | 1938 | 133.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 134   | 1938 | 134.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 135   | 1938 | 135.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 136   | 1938 | 136.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 137   | 1938 | 137.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 138   | 1938 | 138.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 139   | 1938 | 139.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 140   | 1938 | 140.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 141   | 1938 | 141.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 142   | 1938 | 142.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 143   | 1938 | 143.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 144   | 1938 | 144.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 145   | 1938 | 145.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 146   | 1938 | 146.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 147   | 1938 | 147.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 148   | 1938 | 148.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 149   | 1938 | 149.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 150   | 1938 | 150.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 151   | 1938 | 151.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 152   | 1938 | 152.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 153   | 1938 | 153.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 154   | 1938 | 154.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 155   | 1938 | 155.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 156   | 1938 | 156.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 157   | 1938 | 157.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 158   | 1938 | 158.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 159   | 1938 | 159.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 160   | 1938 | 160.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 161   | 1938 | 161.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 162   | 1938 | 162.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 163   | 1938 | 163.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 164   | 1938 | 164.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 165   | 1938 | 165.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 166   | 1938 | 166.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 167   | 1938 | 167.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 168   | 1938 | 168.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 169   | 1938 | 169.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 170   | 1938 | 170.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 171   | 1938 | 171.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |
| 172   | 1938 | 172.00 | ...     | ...    | ...          | ...        | ...     | ...  | ...   |

COMMERCIAL CAR JUNE, 1938

Four-Wheel-Drive

(\*) Chassis & Cab prices. † Denotes New Models or Change in Specifications.

| Line Number | MAKE MODEL                | GENERAL (See Keynote) |                    |             |                      | TIRE SIZES  |           | ENGINE DETAILS            |                   |           |       |                  |        | TRANSMISSION |             | REAR AXLE      |                |               | FRONT AXLE | BRAKES |                   |                |               | FRAME |               |                |                    |                |      |        |      |          |      |               |                           |                      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
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|             |                           | Chassis Price         | Standard Wheelbase | Max. Wt. B. | Gross Vehicle Weight | Chassis Wt. | (Striped) | D-dual rear S-single rear | Maximum Tire Size | Furnished | Model | No. of Cylinders | Stroke | Displacement | Comp. Ratio | Torque lb. ft. | H.P. at R.P.M. | Main Bearings |            | Length | Governor Standard | Make and Model | Forward Spd's |       | Gear and Type | Drive & Torque | Rear Ratio in High | Make and Model | Type | Lining | Area | Operat'n | Type | Hand Location | C-A Dimension (Std. W.B.) | Side Rail Dimensions | Type |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    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    |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|             |                           |                       |                    |             |                      |             |           |                           |                   |           |       |                  |        |              |             |                |                |               |            |        |                   |                |               |       |               |                |                    |                |      |        |      |          |      |               |                           |                      |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    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   |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| 1           | Marmon Herrington (Cont.) | 11910                 | 108                | Op          | 13600                | 10.50/20    | 10.50/20  | 10.50/20                  | Her HXC           | 6-34      | 3.6   | 355              | 4.5    | 180          | 2000        | 7-34           | 17             | Y             | BL 7341    | 4      | W/MH900           | 2F             | H             | 8.8   | W/MH900       | 41A            | 738                | 975            | a    | FD     | 102  | 102      | 102  | 102           | 102                       | 102                  | 102  | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 | 102 |  |



[illegible]

\* Denotes New Models or Change in Specifications. \* Chassis and cab price.



## TRUCK DRIVER LINGO

(CONTINUED FROM PAGE 29)

PEANUT ROASTER—air leak in intake manifold

PEANUT WAGON—small truck that pulls a large trailer

PENSION RUN—a short, easy, regular haul

PICKER UPPER—service car with crane

PINNING HER EARS BACK—gliding her or putting your foot in the carburetor

PLOW JOCKEY—cheap driver, just off the farm

PNEUMONIA SEDAN—no glass in cab

PRIDE OF THE FLEET—an old rattle trap truck that's hard to handle

PUDDLE JUMPER—light, small truck that bounces off ground

PULLER—an out of the way stop

PUNCTURED LUNG—leaky radiator

PUP—narrow tread four-wheel trailer

PUSH WATER—same as Bug Juice

PUT IT IN THE CORNER—using extreme low gear

PUT IT TO BED—putting truck away for night

PUT ON WITH A PITCHFORK—a load put on carelessly

REEFER—truck with refrigerator body

RIDER—a flat on duals that carries no load

RIDING A FIREBUG—one rear tire on dual wheels flat causing fire hazard

RIG—a truck

ROUGH RIDER—fast driver

RUBBER BANDS—same as Bicycle Tires

RUBBER HEEL—company detective

SCOW—truck with extraordinary capacity for big load

SHAKING DOWN THE ASHES—cranking a truck

SHOTGUN HERDER—an inexperienced driver

SINGER—chain drive truck

SKIN—tire casing

SLEEPER—truck equipped with sleeping compartment

SMOKER—cigarette haul

SMOOTH MOUTH—same as Museum Piece

SNUB SNOOT—same as Blunt Nose

SOFT COAL BURNER—same as Oil Burner

SOLD OUT TO THE YANKEES—a southern driver who has cracked up his truck

SOLID OF WIND—same as Load of Post Holes

SOUP JOCKEY—waitress

SPINNER—same as Hack Hand

SPOOK—insurance or safety spotter

SPOOK REPORT—a spotter's report

STEM WINDER—hand crank starter

STORMING ALONG—speeding

SUICIDE JOCKEY—driver of a nitro glycerine truck

SUPREME LOW—same as Big Hole

SWAMPER—helper on a truck who does no driving

SWEAT SHOP—bullet-proof cab with little ventilation

SWEETHEART—a good performing piece of equipment

SWINGER—a big or heavy load

THE MEN—police

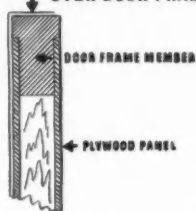
THROW OUT THE ANCHOR—use emergency brake

THUMB BUSTER—a spinning steering wheel on four-wheel drive trucks when driven on rough ground or in mud

TILTING GEAR—hoist on a dump truck  
(TURN TO PAGE 62)

## LOOKS GREAT IN THE PUBLIC EYE (And on the Cost Sheet)

FORM SHEATHING METAL  
OVER DOOR FRAME



Shop Kinks—Typical of  
Labor Saving Methods  
with Plymetl

Diagram shows metal surface of Plymetl with Plywood cutaway and metal formed at right angles to make one-piece strong door edges. Six side and back doors are handled this way—24 better edges, more easily made.

### HASKELITE



# PLYMETL

HASKELITE MANUFACTURING  
CORPORATION

208 West Washington Street,  
Chicago, Illinois  
Offices in Detroit, New York, Los Angeles

# Consider these advantages

*For Quick, Safe, Smooth Stops*

## Wagner CoMaX

### BRAKE LINING

LARGE METAL SIGN . . . 35" x 24" FREE  
TO SHOPS HANDLING CoMaX . . .  
ASK JOBBER FOR COMPLETE DETAILS.



**CoMaX Service Cap  
FREE to mechanics**  
**Ask your Jobber or  
Write us . . . .**

## CoMaX is—

**NON-COMPRESSIBLE**... Brakes lined with CoMaX run for long intervals without needing adjustment.

**HOMOGENEOUS**... As the lining wears, the same type of braking surface is always exposed to the drum.

**WIRE BACKED**... Permitting deep seating of rivets—and increasing depth of lining available for braking service.

**EASY ON DRUMS**... Contains no abrasive material.

**IDEAL FOR HIGH SPEEDS**... No fade-out under high friction temperatures.

**QUIET**... Grips silently. No "howling" or "squealing."

**SMOOTH**... Permits even, controllable deceleration.

**AGE-PROOF**... Does not deteriorate in stock.

**PRICED RIGHT**... CoMaX sells at competitive prices notwithstanding its superior qualities.

**COMPLETE COVERAGE**... Available in sets, rolls and blocks—in all widths and thicknesses—for all makes of passenger cars, trucks, tractors, trailers, buses, etc.

**WELL MERCHANDISED**... Strikingly colorful signs, caps, boxes, leaflets, cards, bulletins, etc.

**WAREHOUSED NATIONALLY**... Prompt delivery is assured because jobbers can draw from nearest 24 strategically located factory branches.

**CLIP and MAIL  
COUPON  
for  
DETAILS**

AUTOMOTIVE PARTS DIVISION

B38-2A  
CCJ

**Wagner Electric Corporation**  
6400 Plymouth Avenue, St. Louis, Mo.

- ☐ Send details on CoMaX Brake Lining.  
☐ Send Service Cap FREE.

Name

Address

City  State

Name of My Jobber

TIPPER—dump truck  
 TISSUE PAPER—truck frames that bend or break easily  
 TOTE WAGON—light truck used to haul supplies in a construction camp  
 TRAFFIC WHIPPER—same as Cowboy  
 TRAINING TO BE AN ESKIMO—applied to driver who persists in riding with window open in cold weather  
 TRUCK SPINNER—same as Hack Hand  
 TWIST HER TAIL—same as Shaking Down the Ashes

UNDERTAKER'S FRIEND—drunken driver  
 UP IN THE NOSE—load in front end of truck or trailer body  
 USING FEELERS—no lights  
 WHISTLING GEAR—same as Down in the Kitchen  
 WHITE COLLAR MAN—driver who handles clean merchandise  
 WORKING FOR STANDARD OIL—truck using excessive gasoline  
 YODELING GEAR—an overdrive that makes a high singing noise  
 &'(\*)'##\$\*—street car motorman

## Utility Ideas

(CONTINUED FROM PAGE 25)

tive engineer, Columbia Gas & Electric Corp., declared that practice does not follow the theory laid down by Mr. North.

"If all the specifications are met, say, by the ABC truck, you still won't buy it if you have been standardizing on the XYZ truck. You have to get permission from higher-ups to buy the right kind of equipment. Sometimes they are unreasonable. I wonder if any amount of specifications and formulas will be able to sell the men in charge of the purse strings the viewpoint of the men who know their transportation.

"You can't buy a truck for just one purpose. You need it for a variety of services. Therefore, you often buy a truck that's bigger than is needed the greater part of the time."

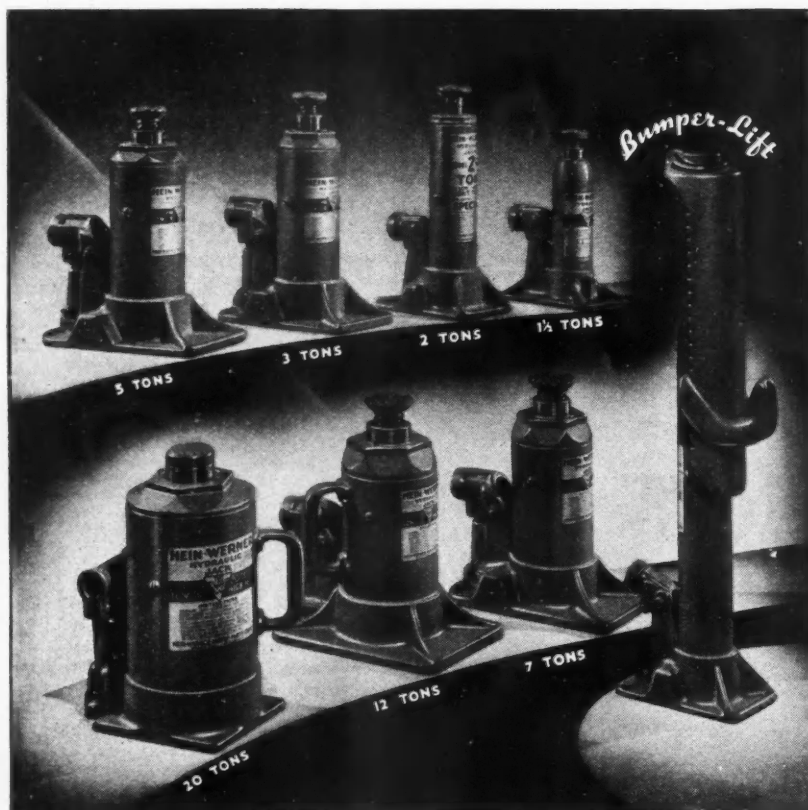
F. K. Glynn, of American Telephone & Telegraph Co., touched on depreciation and servicing. Said he: "Trade-ins are credited to the old vehicle and depreciation is based on the new vehicle's price. I think this hurts the companies with high or watered list prices because the depreciation is figured in the operating cost."

Addressing himself to all the utility men present, Mr. Glynn asked, "Why not get out of the auto repair business and into the public utility field? You wouldn't have to worry about standardization then."

Harry O. Mathews, of Public Utility Engineering & Service Corp., answered Mr. Glynn with: "We are trying to get out of the repair business as much as we can, but in the small towns there are dealers who don't seem to hear about the service bulletins that are put out by manufacturers."

Mr. Mathews said he thought an effective lining area of 40 sq. in. per 1000 lb. of gross weight was too low.

Defending the idea of setting up specifications and working to them, Randolph Whitfield, of Georgia Power Co., declared that "if a truck doesn't work out on paper you know damn well it won't work out in public utility work. Therefore, it is advisable to work to specifications, using specifications as minimums." He passed on a tip in saying that his company has been using sedan de-



## TESTED at 1 1/2 TIMES RATED CAPACITY

Hein-Werner Hydraulic Jacks are compact, powerful and SAFE. Before leaving the factory, these jacks are tested at 1 1/2 times their rated capacity. It is impossible to accidentally lower one of these jacks because the handle must be removed from the pump to open the release valve.

Complete line includes the "Bullet" 1 1/2 ton capacity jack at only \$2.80 . . . Light Truck Special, 2 ton model, \$3.70 . . . 3 ton model, \$6.95 . . . 5 ton, \$8.95 . . . 7 ton, \$11.75 . . . 12 ton, \$17.50 . . . 20 ton, \$30.00 . . . And for modern passenger cars, Light

Model BUMPER-LIFT, only \$4.10 . . . Heavy Model, \$5.45 . . . All prices are net to dealer, and slightly higher on West Coast.

Hein-Werner also makes a complete line of FLOOR JACKS—2, 3, and 4 ton capacity.

All H-W Jacks are built right and priced right. Ask your jobber salesman or write us for details.

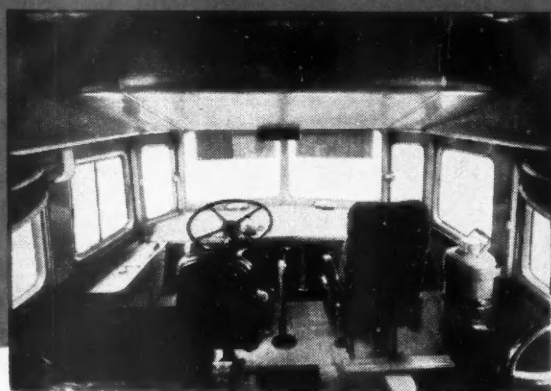
HEIN-WERNER MOTOR PARTS CORP.  
 Waukesha, Wisconsin





# YOU CAN DEPEND ON CHAMPIONS

## *For Maximum Dependability*



One of 45 U.C.F. Air Conditioned De Luxe Motor Coaches for the Santa Fe Trailways System. Inset shows conditioned air outlet.

The Santa Fe Trailways' new "air conditioned fleet" of a.c.f. de luxe motor coaches brings outstanding new luxury and comfort to bus travel. This pioneer fleet, the first specifically engineered to incorporate complete air conditioning, marks a definite milestone in modern bus transportation.

This advanced fleet, like most outstanding bus or truck fleets, uses Champion Spark Plugs for maximum dependability.

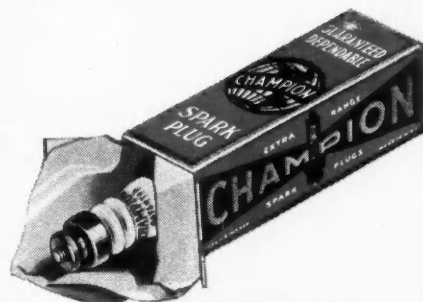
No fleet owner can hope for maximum profits unless his units give maximum service. Trucks, cars and buses must be kept on the road, maintaining their schedules, if his operation is to be successful. The spark plugs you use in your

engines may be the determining factor.

Worn-out spark plugs, spark plugs that have been retained too long in service, or spark plugs of inferior quality, cannot possibly produce dependable performance in any engine.

Most successful fleet operators depend on Champions for they know from past records that they deliver economy, power, speed and dependability under all operating conditions.

If you have not yet standardized on Champion Spark Plugs you owe it to yourself to give them a trial. Our factory engineers have successfully solved many perplexing operating problems and will welcome an opportunity to consult with you.



**THE SPARK PLUG CHAMPIONS USE**

**CHECK AND CLEAN SPARK PLUGS WHEN YOU CHANGE OIL**

COMMERCIAL CAR JOURNAL  
JUNE, 1938

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liveries in appliance repair work. The advantages are lower first cost, lower operating cost and better trade-in value.

Edward L. Tirrell, of Utility Management Corp., warned fleetmen that the "cost of riding time of men is a valuable point that must not be overlooked when making a job analysis on which to base specifications."

Mr. North summed up the discussion by saying: "We think it better

to do work in our own garages wherever we can. I hope no one got the idea that our operation is one of theory only. I can assure you that working to specifications has saved us literally thousands of dollars."

Detailed consideration was accorded public utility bodies and body equipment by N. P. Larsen, of The American Coach & Body Co., and P. E. Hawkins, of The Baker-Raulang Co. They reviewed current prac-

tices and mentioned several innovations. Both men revealed their companies had designed utility bodies with integral crew compartments for the new cab-over-engine types of trucks. This type of body design evoked sceptical observations from a number of operators. They felt the bodies would be subjected to too much localized distortion which would cause rapid destruction. These were snap judgments which experience may prove entirely unwarranted.

Mr. Larsen said it was his opinion that line construction units of this type would become very popular.

"At the present time," he said, "it appears to be the most satisfactory and economical solution, and lends itself well toward standardization of the body so that it may be installed on several makes of chassis."

Mr. Larsen also referred to a new winch in which the conventional beams commonly placed under a winch for a base, have been dispensed with, permitting the winch drum to be lowered from 5 to 8 in.

Under the heading of care of equipment, Fred Heinlein, of The Cincinnati Gas & Electric Co., presented a paper on "Engine Deposits—Causes & Effects." There is no point in presenting the details here because they agreed in practically all particulars with the article "To Drain or Not to Drain" in the May issue. Mr. Heinlein classified the influences governing engine deposits as follows:

"1. Factors dependent on the present condition of the engine, such as the fit of the piston rings and the time of operation since cleaning.


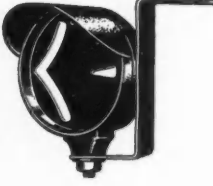



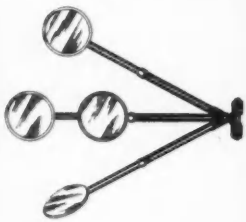
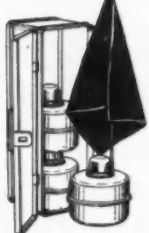
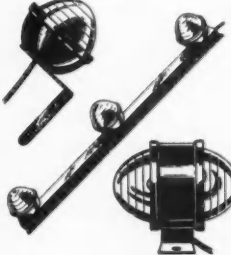
"2. Those dependent on the circumstances of operation, principally temperature, speed and load, and air-fuel mixture ratio.

"3. Those dependent on the material supplies: Fuel, lubricating oil and also contamination of air by dust."

Referring to his own maintenance practices, Mr. Heinlein said:

"We use S.A.E. 10 in all passenger cars, light and medium-heavy trucks, and S.A.E. 20 in heavy-duty equipment during the greater part of the year. During the extreme hot weather we add S.A.E. 20 to our equipment using S.A.E. 10, and S.A.E. 30 to our equipment using S.A.E. 20.

"The average change of oil filter (TURN TO PAGE 67, PLEASE)

|  |   |  |
|--|---|--|
|   | <p align="center"><b>Arrow Directional Signals</b></p> <p>Arrow Signals have won the preference of fleet operators on sheer merit. Arrow built-in features and durability were especially designed for long, rough commercial service. The Arrow Semi-Automatic Switch is recognized everywhere for its superiority in design, construction and trouble-free performance.</p> |   |
| <p align="center"><b>Arrow Fog Lights</b></p> <p>A balanced combination of a scientifically designed lens and silver plated reflectors produces the penetrating, controlled, Arrow adverse weather driving beam. Its extra heavy shell and rugged mounting bracket, are additional construction features which appeal to commercial operators.</p> |   | <p align="center"><b>Arrow Reflex Reflectors</b></p> <p>Night traffic demands efficient, heavy-duty Reflex Reflectors for pay-load safety. Arrows have three times the brilliancy required by I. C. C. and a reflection efficiency of 1000 feet in the glare of normal headlights.</p>   |
|   | <p align="center"><b>ARROW<br/>LEGALLY<br/>APPROVED<br/>SAFETY<br/>DEVICES</b></p> <p align="center"><small>ARROW SAFETY<br/>EQUIPMENT CO., INC.<br/>MEDFORD, NEW JERSEY</small></p>  |   |
| <p align="center"><b>Arrow Flares</b></p> <p>Arrow No. 80 Oil Burning Flares are sturdy, safe and legally approved. Burning time 16 hours on one filling. Arrow No. 90 Electric Flares operate on a standard dry cell—burn four 8-hour periods. Visibility one-half mile.</p>  |    | <p align="center"><b>Arrow Marker Lights</b></p> <p>Every type of marker light with lens in red, amber, green, clear or blue, and 6-8 volt 3 c.p. bulbs, are included in the Arrow Line of Legally Approved Safety Devices. Arrow's inherent design, material and construction features, which provide durability for heavy-duty service, are built into Arrow Safety Marker Lights.</p> |
|   | <p align="center"><b>Arrow Safe-C-Mirror</b></p> <p>Strictly a heavy-duty mirror. Angular adjustable and telescopic from 17" to 25". Mirror back "life-time" copper plated. Permanently brilliant and guaranteed against atmospheric conditions. Extra heavy mounting bracket, shaft, arm and mirror head.</p>  |    |

This Thompson Valve went over 730,000 Air Transport Miles in a Pratt & Whitney "Twin Wasp" Engine.

This Thompson Valve saw service for over 687,000 Air Transport Miles in a Wright "Cyclone."

STELLITE SEAT

## PUT THOMPSONS INTO YOUR TRUCKS *Longest* FOR LONGER VALVE SERVICE

● Thompson Aero-type Valves for truck and bus service are an adaptation of the famous Thompson Aircraft Valve so widely used by aircraft engine builders and air transport companies.

Made of Silchrome-X Steel, faced at seat and tip with Stellite, these valves are unequalled for resistance to heat, battering, pitting, corrosion, and wear.

Thompson Aero-type Valves are a paying investment!

They stop power loss and fuel waste! They need fewer regrinds, and pay for themselves many times over before replacement is necessary.

Your Thompson parts jobber carries Thompson Aero-type Valves. Put them into your trucks and buses—then watch them set new records for valve performance.

Other heavy-duty Thompson Parts for trucks and busses are: Aero-type Pistons, Chrome Plated Piston Pins, Duracrome Valve Seats, Nitricastiron Cylinder Sleeves.

THOMPSON PRODUCTS, INC.  
CLEVELAND • DETROIT

This Thompson Valve went 120,088 Bus Miles before reconditioning for additional service.

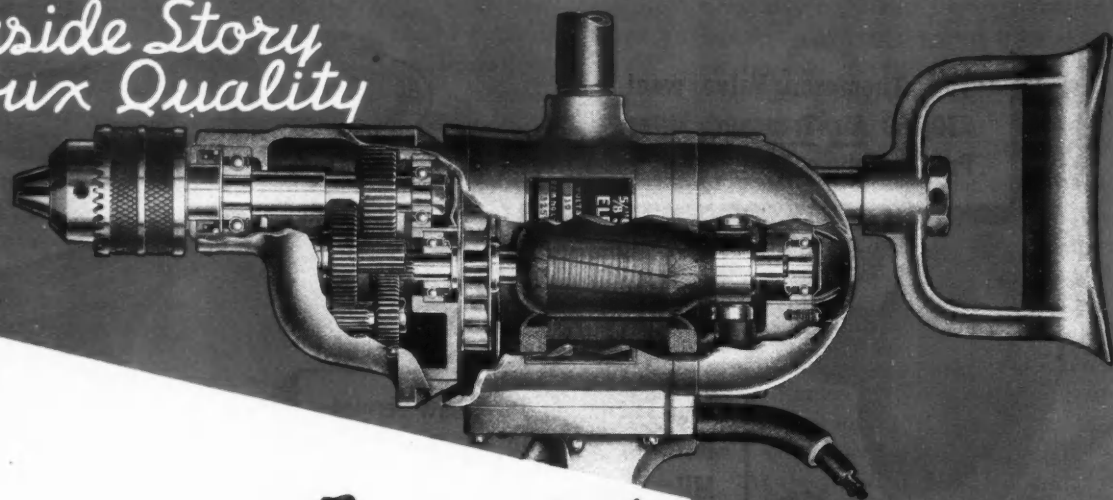
STELLITE TIP



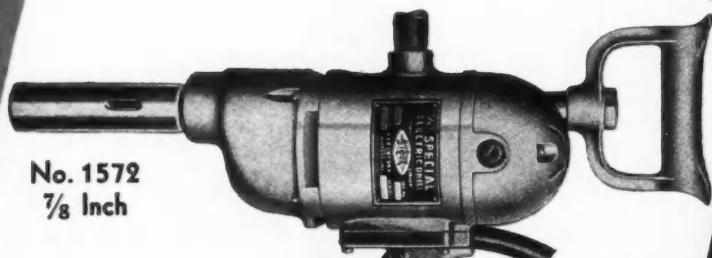
# Thompson Aero Type Valves



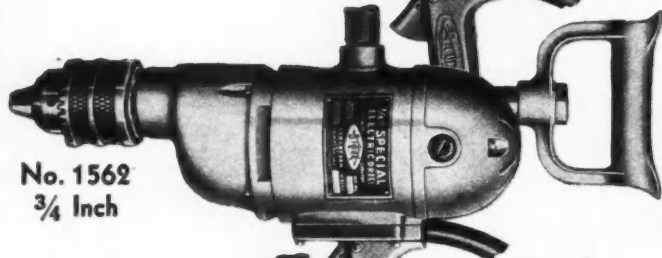
*The Inside Story  
of Sioux Quality*



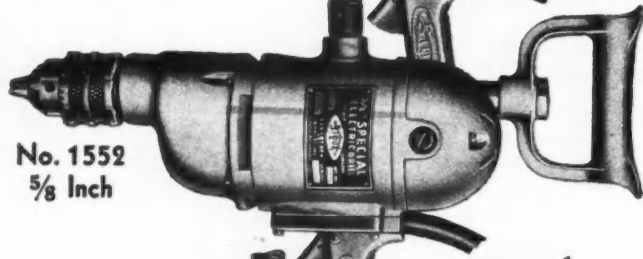
No. 1572  
7/8 Inch



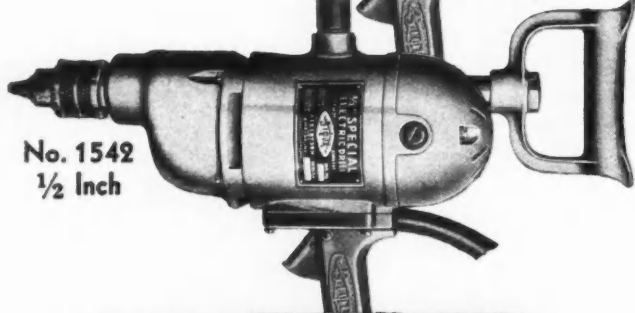
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No. 1552  
5/8 Inch



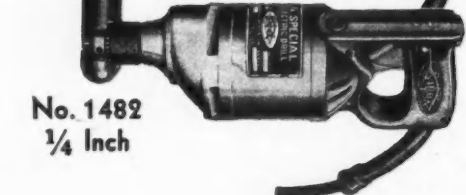
No. 1542  
1/2 Inch



No. 1532  
1/2 Inch



No. 1482  
1/4 Inch



# SIoux SPECIAL ELECTRIC DRILLS

*for*  
**EVERY PURPOSE**  
*Each one an  
Amazing Value*

## SIoux SPECIAL FEATURES

- PERMANENTLY LUBRICATED.
- OIL PACKED AND SEALED.
- ALUMINUM DIE CAST CASE.
- SPUR GEARS HEAT TREATED.
- BALL BEARING CONSTRUCTION.
- CYCLONE FAN GIVES INCREASED VENTILATION.



**Your Jobber Sells Them**

ALBERTSON & CO., Inc., Sioux City, Iowa, U.S.A.

**STANDARD THE  
WORLD OVER**



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COMMERCIAL CAR JOURNAL  
JUNE, 1938

(CONTINUED FROM PAGE 64)

cartridge on passenger cars and light trucks is about every 6000 miles; on medium-size trucks about every 5000 miles, and about every 3000 miles on heavy-duty equipment.

"We do not rebore any of our passenger-car motor blocks, as we secure between 45,000 and 50,000 miles before we find it necessary to replace the rings, then after the car is driven another 20,000 or 30,000 miles we dispose of it. Light and medium trucks are giving us approximately 70,000 miles before a rebore is necessary and the heavy-duty units approximately 100,000 miles.

"Our reduction in engine maintenance costs has convinced me that the oil filter is indispensable.

"If automobile manufacturers will give their fullest cooperation, and at the same time the operators will stay within the limits for which their equipment was built, and if, further, wise selection of fuels and lubricants are made, then days of more economical operations can be looked forward to."

J. Y. Ray, of Virginia Electric & Power Co., and chairman of the T. & M. Public Utilities Committee, arose to remark that in oil-type air cleaners he found that the use of lighter oil improved gas mileage.

"The Importance of Periodic Engine Tune-up" was discussed by Errol J. Gay, of Ethyl Gasoline Corp. Mr. Gay concentrated on carburetor maintenance in such a practical fashion that it is not possible to brief his suggestions in this report of the meeting. Instead, his remarks will be carried in full in the July issue. On the subject of fuel, Mr. Gay said:

"Engine manufacturers expect their product to be run on reasonably good fuels and this becomes almost a base line consideration of any discussion of engine operating economies. Six important factors to consider when purchasing fuel are these:

"Source of supply, anti-knock value, distillation, volatility, vapor-locking tendencies and cleanliness (gum, sulphur, water).

"Many operators are faced with the problem of old and new equipment having different fuel requirements. It is not fair to the new equipment to penalize its chances of maximum operating economies by the use of the wrong fuel. It would

seem better practice to modernize the older equipment by changing compression ratios, carburetor settings and spark settings to take advantage of the better fuel needed for the newer equipment.

"It is often found that the retarding of the spark to prevent fuel knock in modern engines will reduce fuel economy and power output. When this is noticed the natural tendency is to advance the spark and tolerate

the knock. However, hidden costs not chargeable to the fuel can result from this practice, such as:

- "1. Rapid piston wear or piston burning.
2. Breaking of piston ring lands.
3. Piston ring sticking.
4. Rapid filling of the oil ring grooves.
5. Increased oil consumption.
6. Shorter spark plug and exhaust valve life."



# In "Cyclones"

## ...dag is used!



WRIGHT CYCLONE ENGINE

Well-known to technical men are the stresses and strains set up in the operation of modern airplane power plants. It is, therefore, significant that "dag" colloidal graphite is being selected by an increasing number of engine manufacturers as the auxiliary lubricant to use in combating these wear-producing conditions.

In an industry where positive performance is vital, where "check and double check" is the watchword, materials and equipment accepted must undergo rigid test.

The use of "dag" colloidal graphite by the WRIGHT AERONAUTICAL CORPORATION is a powerful testimonial. They find that the graphoid surface gives added protection to the metal parts subjected to high temperatures and heavy pressures. All overhaul and repair jobs are set up and assembled with "dag". Write for technical data.

**ACHESON COLLOIDS CORPORATION**  
PORT HURON, MICHIGAN



**ACHESON COLLOIDS CORP., PORT HURON, MICH.**  
Please send gratis, story on "dag" Colloidal Graphite.

NAME .....

ADDRESS .....

## Carrier Problems

(CONTINUED FROM PAGE 31)

why their operations in the delivery of their products should not be subject to motor carrier regulation; why they should not be required to secure a certificate of public convenience and necessity, and to charge rates equal to those prescribed for common carriers. The Commission in issuing the order said, "The foregoing operations constitute a menace \* \* \* the questions

involved should be speedily determined."

In Wisconsin, every vehicle used for commercial purposes must secure a permit in addition to its usual vehicle registration.

Throughout the grain-growing states of the Mississippi Valley, hard times have developed a new class of grain dealers whose activities seriously interfere with responsible and established country elevators. They drive their trucks into the country, buy their grain direct and transport

it to some nearby town for disposal. Many of these itinerants own no visible property, other than their trucks. Instances of short weights and other frauds perpetrated against the farmers have become known.

The grain dealers of this territory are organized and are, at the present moment, developing a legislative program for the regulation of these itinerant operators under the motor carrier laws of the several states. The handling of grain has been accepted as a service impressed with a public interest, and no one should object to proper regulation of these itinerant, and sometimes financially irresponsible, grain dealers. Such regulation could well be included in the grain marketing laws, the peddler laws, or the laws protecting weights and measures; but if the present program of the established grain dealers is carried through, it will without doubt result in the regulation of every shipper-owner who transports his own goods in his own vehicle in furtherance of a commercial enterprise.

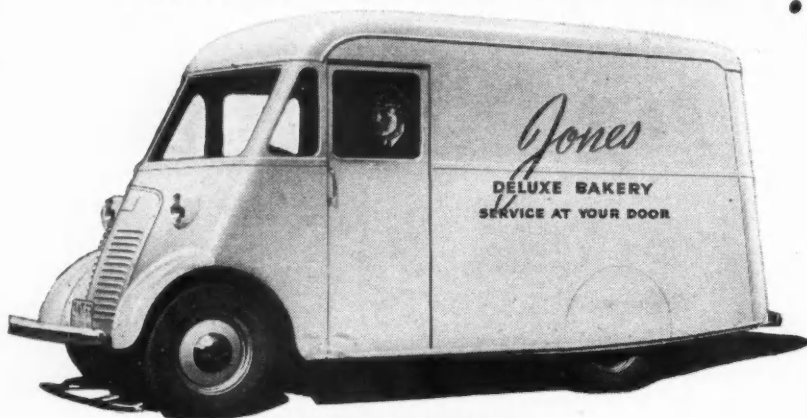
Indiana enacted a new truck tax law last year, the amount of the tax being based upon the size and number of tires on each vehicle. This law had the effect of slightly reducing the taxes of common and contract motor carriers and materially increasing the taxes on private carrier trucks. This law was frankly sponsored by a strongly organized group of railroad lobbyists. One of them said: "From now on, as far as the railroads and the for-hire carrier trucks are concerned, the private carrier truck is Public Enemy No. 1."

The railroads have vigorously opposed, and have usually defeated, every effort to establish uniform vehicle size and weight restrictions in the several states (as in South Carolina), and every effort towards establishing reciprocal arrangements as to trucking requirements among the states (as in Michigan).

Attempts are being made in New Mexico and in California to bring the private carrier under the same taxing authority that imposes the taxes upon the for-hire operators. In each case, this authority carries a heavy wallop of regulation. Many other states have attempted by one means or another to broaden their regulatory powers in such a manner as to include the private carrier.

(TURN TO PAGE 87, PLEASE)

## NOW BIGGER PAY LOAD SPACE! LOWER OPERATING COSTS!



## SENSATIONAL WILLYS HALF-TONNER IDEAL FOR LIGHT BULKY LOADS

● Willys has materially reduced dead weight and has designed a panel body with ample roominess for bulky loads. Load compartment is 96 inches long, 63 inches wide and 63 inches high, with ACTUAL loading space of 206 cubic feet. . . The body frame is of all-steel, tubular, Unit-Weld construction with "Ply-Metl" panels and one-piece compound hardwood floor, forming a *smooth, clean, dustproof interior*.

Every feature of this truck points toward reducing costs, saving time and increasing income. Write for full details and descriptions.

WILLYS-OVERLAND MOTORS, INC. . . . TOLEDO, OHIO

## CUT COSTS . . . SAVE TIME . . . INCREASE INCOME *Check these points—*

1. Quality in every detail. 2. Low price—low cost per cubic foot of load space. 3. Exceptionally low gasoline, oil and maintenance costs. 4. Short wheelbase for easy maneuvering and parking—17-foot turning radius. 5. Low gross weight in relation to high pay load—practically 30%. 6. Exceptionally wide visibility for driver. 7. Oversize clutch, transmission and brakes. 8. Large body capacity in relation to weight of load carried. 9. Com-

pletely insulated from motor heat, fumes and dust. 10. New type springs and spring suspension and complete shock absorber equipment prevent jolting the pay load. 11. Modern appearance—attracts favorable attention. 12. Long life with low depreciation. 13. Powerful, Fuel-Saver 4-cylinder engine. 14. Sturdy, K-X type frame. 15. Not a conversion—developed complete by Willys.



# Brand new type truck tire

## SAVES MONEY FOR TRUCK OPERATORS



Big cash savings through longer mileage, smoother going, safer stopping and freedom from blowouts are now available to truck owners everywhere.

For faster truck speeds — the result of better trucks and better roads — Hood has designed and built an entirely new truck tire. Its new features have been proved, under the severest driving conditions.

**NEW QUICK STOP TREAD**—Patterned after the remarkable new 1938 Hood passenger car tread, for long, even wear, for positive traction and for safer stopping! Its zig-zag ribs wipe wet roads dry — for greater safety on any road, in any service.

**NEW HI-DENSITY CORD CARCASS**—This new cord — stronger than ever — permits more rubber insulation between cords and between plies. It gives greater protection against destructive friction and heat.

### PLUS THE 4-WAY EXTRA PROTECTION OF HOOD'S LOAD EQUALIZER CONSTRUCTION

- 1 Protection Against Impact Blowouts — with the Hood exclusive extra-heavy reinforced Shock Breaker.
- 2 Protection Against Heat Blowouts — with the new Hi-Density anti-friction cord, plus extra rubber insulation.
- 3 Protection Against Lower Sidewall Blowouts — with extra-strong rubber-tipped twin treads, and multiple anti-chafing strips.
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See your Hood Dealer for this new truck tire.  
Or write the Hood factory at Akron, O.

The New Hood Commercial is made to replace passenger car tires on ½ and ¾ ton trucks. Its wider tread and stronger, speed-protected carcass mean new economy in light, high-speed truck service.



## Tire Experts

(CONTINUED FROM PAGE 27)

conditions the balloon tires contribute definitely to make a better riding truck. High-pressure tires, particularly if driven at high speeds, bounce in a manner very detrimental to the vehicle. The larger area of contact of the balloon tires, combined with the greater facility with which they conform to the road irregularities, provides greater safety and better control of stopping, starting and skidding. Again in operating on soft roads, balloon tires being of larger and bulkier dimensions do not sink down and become mired so easily.

In trailer service balloon tires are especially conducive to increased speeds as with a light vehicle there is less bounding and weaving.

The few truck operators who run at slow or only moderate speeds in city hauling and have been using high-pressure tires in the belief that they are more suitable for their operations, should discontinue the use of high-pressure tires because of

the all-around positive benefits of the balloon tires.

In a general way the load carried per pound of tire is the same for both tires. Also, the load carried per dollar is substantially the same. Consequently, any way in which the balloon tire may excel the high-pressure tire in durability and freedom from trouble is in its favor.

It is characteristic of the balloon type that it has a larger section with thinner walls and more tread rubber available for wear. This results in two benefits. First, the thinner walls and larger section provide conditions more favorable to greater flexing life of the body plies; that is, there is definitely less likelihood of premature failure from flexing fatigue. Second, the balloon tires under given conditions do not heat up as much as high-pressure tires. All of this means that the tires which run cooler can be expected to be definitely freer from blowouts and other forms of premature body-ply trouble.

Another important benefit of the lower degree of heat generated in the balloon tires is that of preserving the inner tube. Tube stock when sub-

jected to prolonged high heat becomes flabby and lifeless.

In the case of dual tires, the greater deflection of the balloon tires makes for better equalization of the load between them.

With high, sustained speeds, a form of tire failure classified as an "impact break" often occurs. Most often this occurs when the truck strikes an obstacle or hole in the road and the shock is severe enough to burst through all the plies at one blow. It has been found, however, that this type of break sometimes occurs on roads in fair condition, probably due to the up and down bouncing of the truck over the ripples in the pavement which induces tread separation and results in a blowout of the impact type. Impact breaks will occur on high-pressure tires even at slow speeds and it is generally considered that higher pressure is conducive to this type of blowout.

On rough pavements there is a saving in fuel because the truck glides over the road more easily without bouncing up and down. On high-speed operations where the roads are

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AND QUIETLY, HELPS YOUR FLEET GO PROFITABLY   
IT'S A SPECIALIST'S JOB COACHING  EIGHT TO  
THIRTY-TWO BRAKE BLOCKS INTO A PERFECTLY BALANCED   
TEAM, BUT IT SURE CUTS DOWN  THE BRAKE  
COST-PER-MILE. GREY-ROCK'S PLAN MAKES ANY GOOD  
MECHANIC A SPECIALIST ON BIG  OR LITTLE  JOBS.



# Grey-Rock

rough, there is not so much tendency for the balloon tire wheels to bounce off the ground, with consequent saving in both fuel and tire wear.

By and large, under comparable conditions, balloon tires will show a lower cost per tire mile in addition to reducing the maintenance cost on the vehicle and with less damage to fragile loads. The balloon tires have more mileage built into them because they definitely have a greater amount of tread rubber available for wear; and added to this the intensity of pressure of the tread rubber against the pavement surface is lower which, of course, means less pronounced abrasive action in wearing the rubber away.

It is important to give consideration to the character and type of premature failures which occur in both types of tires. In a complete year's summary of failures on which it was necessary to make adjustments, statistics showed for each 1000 tires from each class, there were 50 per cent to 60 per cent more adjustments on the high-pressure type than the balloon type. Of course, this definitely indicates a lack of ability in the high-

pressure type to do the job corresponding to that done by the balloon type.

Truck manufacturers can simplify their business materially by actively discouraging the use of high-pressure tires as either standard or optional equipment on new trucks. The options offered for new trucks reveal that there is needless duplication in capacities. All reference to the high-pressure tires as options should be eliminated from the salesman's specifications.

The study of the various models listed by the principal manufacturers, shows that balloon tires are prominent as standard and optional equipment on most of the models, with the exception of the 1½-ton jobs which continue to show the 32x6-8-ply high pressure as standard equipment, particularly on the rear. This gives the high-pressure tire entirely too much prominence and regardless of whether or not many trucks are sold on this equipment, the truck manufacturers should feature on all their models balloon tires as standard equipment and it certainly seems logical that their optional equipment

could be confined entirely to balloon sizes, leaving the high-pressure sizes entirely off the lists.

There is one other size that needs special mention and that is the 32x6-10-ply. There continues to be a demand for this tire among operators. We feel this is a carry-over from earlier experiences and that these operators do not realize that the time has passed when the 10-ply 6-in. tire does a superior job to the corresponding balloon size. Our adjustment experiences show clearly that by and large the 10-ply 6-in. is not as able to hold its own in the operating conditions which prevail today as the balloon size.

Thus we have two competing lines of tires covering the same range of capacities at substantially similar prices. The remaining outstanding difference is in the air pressure recommendations. Common sense dictates that the truck manufacturer and the tire companies should bend every effort to see that one of these lines should be discontinued. As we tire people see it, there is no question but that the balloon line averages up to have much greater all-

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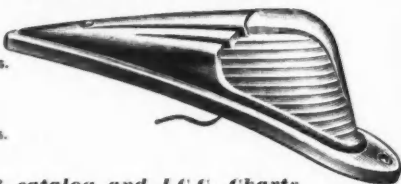
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around merit than the high-pressure line. It is very clear to us that the high-pressure line of tire is not needed and that the balloon type will serve every purpose covered by the high-pressure line, equally as well or better in most cases. We hope that the automotive industry will accept this and cooperate in a way to bring this simplification about.

In making this recommendation it is not the intention of the tire companies to discontinue supplying the high-pressure tires. We realize that truck owners already using high-pressure tires are going to find it convenient and expedient to continue to use them until their trucks are worn out. The all-important move, as we see it, is to persuade operators when they buy new vehicles to specify only the balloon type tire. Then it will not be long until the high-pressure tires will disappear from the market.

**By W. H. ELLIOTT**

Manager, Construction-Design Div.,  
The B. F. Goodrich Co.

**T**HE advantage of the balloon tire over the high-pressure tire has been

demonstrated by public acceptance in the smaller range of sizes.

1. The popular usage of the 7.50-20 8-ply as compared to the 32x6 10-ply is approximately 8 to 1, when using our 1937 sales figures.

2. The acceptance of the 10.50-22 balloon tire as a thoroughly practical tire for both slow speed and high speed service, is proven when we compare our 1937 sales figures with the 42x9 high-pressure tire where the comparison is 32 to 1. (The 42x9 is used as a comparison because it has the same capacity.)

3. The major reasons for the improved performance of balloons over high-pressure in the larger sizes in these days when the effect of tire temperature due to increased speeds is becoming a greater factor, is due to two reasons:

(a) *Crown Thickness* — The 42x9 tire has a crown thickness that is 31 per cent greater than the 10.50; while the 32x6 10-ply crown thickness is 10 per cent greater than the 7.50-20.

(b) The reduced contact area of high-pressure tires as compared to balloon tires, coupled with a higher

pressure, causes greater shearing stresses within the carcass, which pyramids in larger size tires because of their thickness.

We think that the problems in the smaller sizes should be carefully analyzed before making a definite recommendation.

If speed is the major factor, with the load reasonably close to normal, the 7.50-20 8-ply tire should be recommended.

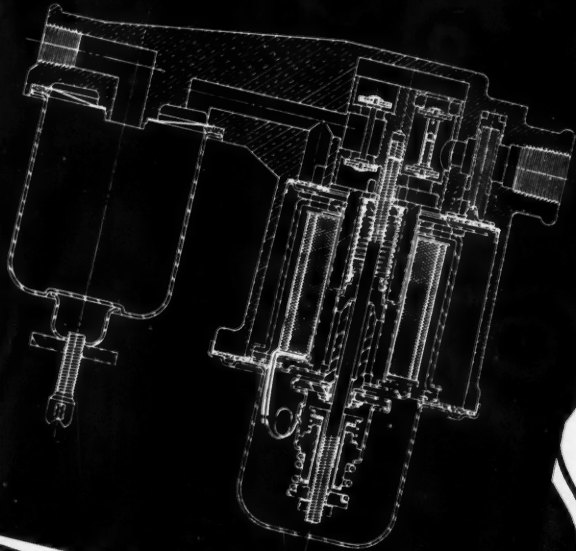
If load-carrying capacity is the major factor and speeds are not excessive, the 32x6 10-ply tire should be recommended.

If tread wear is the problem, we would again recommend the 7.50-20 8-ply tire, because of the increased contact area. This we can prove from our mileage experience during 1937. Using the 32x6 mileage as 100 per cent, the 7.50-20 tire gave 27 per cent better performance.

The most popular high-pressure tire used on the bus mileage accounts from 1930 to 1938, was the 38x7 10-ply tire. The average mileage on this tire improved 41 per cent between 1930 and 1938. The performance of the 9.00-20 tire, which has

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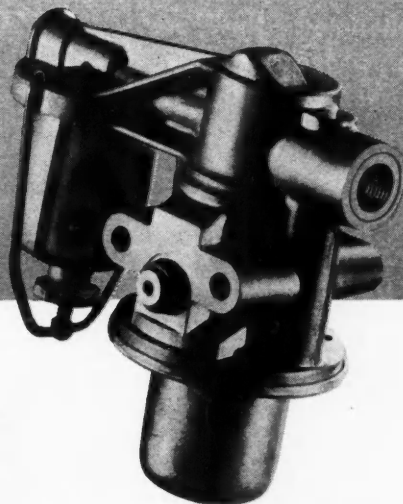
Piston type pump—but no piston rings.

Inertia type valves—not hammered shut by springs.

Quiet operation.

Large filter bowl—integral with pump.

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an equal carrying capacity, has been improved 132 per cent over the same span of years, in spite of the lower bead diameter. The actual mileage performance for the first quarter of 1938, gave the 9.00-20 tire a 25 per cent lead over the 38x7.

The main advantage of the balloon tire is that of reduced thickness, as has been stated before, and this factor materially reduces the heat effect. There are few engineers who fully realize the very detrimental effect of this heat.

We think the engineers and customers should avail themselves of the lower pressured tires and definitely establish some of these facts to their own satisfaction.

**By W. E. SHIVELY**

Manager, Tire Design  
Goodyear Tire & Rubber Co.

**T**HIS is a subject which is of considerable economic importance to the whole transportation industry. It seems logical that, in a field where a

long period of development and broad experience has passed, consideration be given to any feasible steps toward simplification.

This simplification or elimination of high-pressure tires has already worked itself out in respect to the larger sizes used on larger trucks. Here heat has undoubtedly been the determining factor. These larger sizes of balloons are here, and here to stay.

Now, in respect to the smaller sizes of commercial tires, the picture is somewhat different. Heat is less a factor because the smaller tires have more heat-radiating surface in proportion to their thickness, and rim diameters are proportionately greater in respect to tire-sectional size. Therefore, the smaller high pressures give proportionately better performance than the larger high pressures, and therein lies the probable explanation of why the high-pressure tire is still used to such a large extent in the small-truck field, represented largely by so-called 1½-ton trucks.

Exclusive of ½-ton light delivery trucks, 1½-ton trucks represent more than two-thirds of all trucks in use. One and one-half ton trucks are notoriously overloaded. A high-pressure tire, such as 32x6, can better withstand this punishment than its corresponding balloon equivalent, 7.50-20. Where these heavily-loaded 1½-ton trucks are not operated at high speed, the high-pressure tire may give more economical service. But where high speed is an important factor, then the *proper* size of balloon tire will give more economical service.

However, the first cost of the proper size balloon tire will be higher, and this undoubtedly is an important consideration.

This is not a contradiction of Mr. Hale's general contention that balloon tires possess inherent advantages over high-pressure tires. It is a qualification of his statements, intended to show why the light truck field has not responded to the balloon tire in proportion to that trend in the large-truck field.

The 1½-ton truck is a problem in itself. You find a much wider range of types and sizes of tire equipment on this 1½-ton truck than on any other. All of which seems to indicate an attempt on the part of operators

(TURN TO PAGE 84, PLEASE)

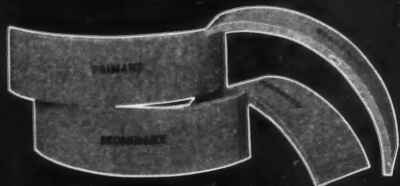
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# TOLEDO

(CONTINUED FROM PAGE 82)

to find a satisfactory combination of tire equipment which will best suit their particular operating conditions. This fact points stronger than ever to the need for simplification. But, unless provision is made in the design of the 1½-ton truck to permit the use of balloon-tire equipment of adequate size, the process of simplification may be seriously retarded.

Balloon tires, when properly used, pay good dividends in the many ways pointed out by Mr. Hale, but we can-

not hope to cash in on the advantages of the low-pressure tires if we persist in the practice of extreme overloading.

In conclusion, on trucks in the 1½-ton class where the tires are grossly overloaded and undersize, high-pressure tires provide a short-term insurance policy at the lowest initial cost. For the long pull, however, and to obtain the lowest ultimate operating cost per mile, adequate and proper size balloon tires should be used.

**By K. A. DALSKY**

Manager, Truck Tire Sales  
General Tire & Rubber Co.

SINCE virtually all other high pressure sizes have passed out of the picture or are in process of passing as rapidly as circumstances will permit, it would appear that the question is really not "Why Continue to Use High Pressure Truck Tires?" but "Why Continue to Use the 32x6?"

I believe that that question is in the nature of a mystery to most tire manufacturers. Operating experience with the 7.50-20 versus the 32-6 10-ply is just as conclusively in favor of the balloon tire as it is in other sizes. Adjustment experience, which Mr. Hale very properly uses as a measuring stick, is equally in favor of the balloon. From every standpoint—carrying capacity, cushioning properties, speed, mileage—the 7.50-20 should replace the 32x6, but for some reason has not done so.

Casting about for that reason, the thought occurs that possibly the difference in ply structure may have some bearing on the question. There may still be some thought in the minds of truck operators and perhaps truck manufacturers that number of plies, alone, determine a tire's worth. That idea, of course, has no real merit in the light of performance.

Common practice among truck manufacturers with respect to rim equipment and wheel spacing is perhaps the most important factor supporting the 32x6 10-ply tire.

On most so-called 1½-ton trucks, standard equipment, as Mr. Hale has pointed out, is 6-in. 8-ply tires on 5-in. rims.

The evidence is plain that a very great number of these trucks delivered on the 6-in. 8-ply tire are changed to 10-ply tires before the trucks are used or at the time of the first replacement. All too many of these tires are applied without any wheel change whatsoever. A little money is saved in initial investment in this way but, unfortunately, a great deal of money is lost piecemeal over a period of time by failure of the tires to deliver economical service when so mounted.

If the 7.50-20 balloon tire were used in replacement of the 32x6 8-ply standard equipment, 7-in. rims or, at least, 6-in. rims with slightly greater

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### GEAR RATIOS Model 4-A-86

|         |        |
|---------|--------|
| First   | 6.54:1 |
| Second  | 3.27:1 |
| Third   | 1.76:1 |
| Fourth  | 1.00:1 |
| Reverse | 7.24:1 |

### Model 4-B-86

These ratios were selected primarily to obtain progressive or "split" ratios in combination with the 3-A-86 auxiliary transmission.

|         |        |
|---------|--------|
| First   | 5.55:1 |
| Second  | 3.27:1 |
| Third   | 1.76:1 |
| Fourth  | 1.00:1 |
| Reverse | 6.58:1 |

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spacing are imperative. That means, of course, an additional expenditure, but that expenditure should be thought of as a capital investment to be extended over the life of the truck and applying to several sets of tires. It is an investment that would be recovered two or three times over by improvement in tire service that would result.

Of course, that same expenditure should be made if that tire change is to be made properly with 32x6 10-ply tires, but there seems to be a very

natural tendency to replace the 8-ply 6-in. with the 10-ply.

From this standpoint, I agree emphatically with Mr. Hale that the truck manufacturer is in the most strategic position to influence the use of balloon tires with advantage to themselves as well as to the truck user. Obviously, if the program of standardization on balloon tires which Mr. Hale advocates could be put into effect, there would be immediate benefits in production and distribution costs which would fa-

vorably affect truck operating costs within a very short time. That is a worthwhile consideration, but it is insignificant in comparison with the direct saving that could be effected in tire mileage and truck maintenance cost by the use of balloon tires.

### Other Discussers

Mr. Botts, of U. S. Rubber, argued that the high-pressure tire can be discontinued and should be discontinued—not immediately but gradually.

Following the expression of views by tire men, Fred L. Faulkner, automotive engineer, Armour & Co., said it was an exceptional case where the low-pressure tire would not operate more economically than the high-pressure. Tests which he made showed that radiator, shackle, body and cab parts repairs were lower in the case of balloons.

Pierre Schon, transportation engineer, General Motors Truck, declared the use of high-pressure tires was a tradition among many operators. He implied that overloading was at the bottom of this tradition. In the coal business, he said, the tendency is to make the 1½-ton truck standard. With a 5-ton load the balloon tire is at a disadvantage because the low-pressure tire can stand the overload better.

In factory specifications, Mr. Schon explained, there is no such thing as a standard tire. The so-called standard tire is merely the base size used in establishing a chassis list price. Manufacturers, he felt certain, would welcome a reduction in the number of tires required today.

Mr. Hale, because of the general agreement with his argument, had no occasion to make a rebuttal. He took the stand just long enough to close the session with an emphatic: "I'll be damned if I can see any excuse for the high-pressure tire."

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## Carrier Problems

(CONTINUED FROM PAGE 68)

### Federal Restrictions

When the Congress was considering Federal regulation of motor carriers, Commissioner Joseph B. Eastman of the I. C. C. testified, in part, as follows:

"So far as the regulation of these private and contract carriers is concerned, it seems to me that the important principle which should govern and which justifies any situation, is the need for protecting the common carrier who undertakes to serve all the public. The common carrier is the one, it seems to me, that the government ought, particularly, to foster and protect."

The law, as enacted, delegates to the Commission power "to establish for private carriers of property by motor vehicle, if need therefor is found, reasonable requirements to promote safety of operation, and to that end, prescribe qualifications and maximum hours of service of employees and standards of equipment. In the event such requirements are established, the term 'motor carrier' shall be construed to include private carriers of property by motor vehicle in the administration of Sections 204 (d) and (e); 205; 220; 221; 222 (a), (b), (d) (f) and (g); and 224."

We find exemptions established in Section 203 (b) for farmers, school buses, National Park trucks, newspapers, etc. That section reads, in part, as follows:

"Nothing in this part, except the provisions of Section 204, relative to qualifications and maximum hours of service of employees and safety of operation or standards of equipment, shall be construed to include \* \* \*

these specified exempt operations; "nor, unless and to the extent that the Commission shall from time to time find that such application is necessary to carry out the policy of Congress enunciated in Section 202, shall the provisions of this part \* \* \* apply to: \* \* \* (9) the casual, occasional, or reciprocal transportation of passengers or property in interstate or foreign commerce for compensation by any person not engaged in transportation by motor vehicle as a

regular occupation or business."

The ink of the President's signature to the bill was scarcely dry before members of the Interstate Commerce Commission's staff were subjected to demands that they immediately exercise the authority thus delegated for the regulation of private carriers to the fullest degree. The enormity of the task and the lack of necessary funds have contributed in restraining the Commission from embarking upon this field of discretionary regulation. Pending today

before the Commission are orders instituting investigations into the need for prescribing qualifications and maximum hours of service of employees and standards of equipment, and also requirements as to the size and weight of private carrier motor vehicles. Organized labor naturally would like to see these hours of labor provisions applied to the drivers of private trucks, even though they be owner drivers.

Many private carriers believe their operations are not subject to Federal

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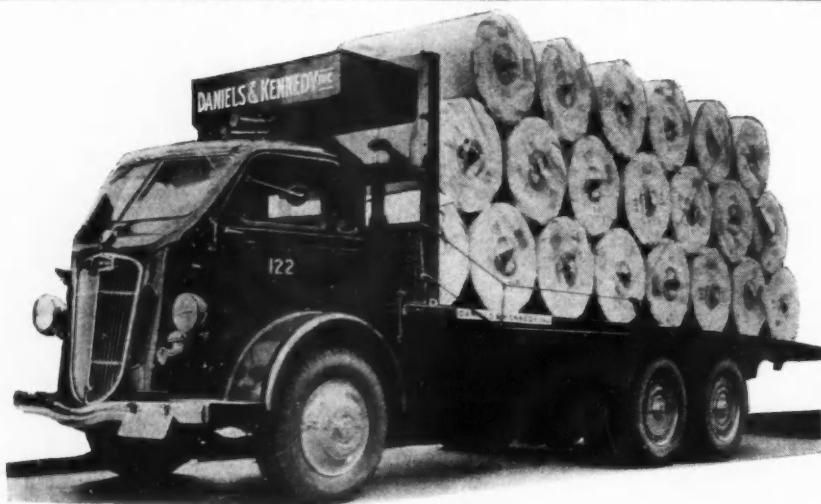
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control because they do not cross state lines. The Commission has said: "A motor carrier may be engaged in interstate or foreign commerce though its physical operations do not cross state lines." Many private carriers will never know whether their operations are interstate until their cases have been decided by the Commission or by the courts. The transporting of a commodity in a private truck from one point to another within a state may be only one leg of the journey of that particular shipment.

The Federal Motor Carrier Act has plenty of teeth. When once the Commission has entered the field of regulating the private carrier, the latter will become subject to the provisions of Section 204 (d), under which a complaint may be filed "by any person, state board, organization or bodied politic or upon its own initiative without complaint \* \* \* ." Section 222 (a) provides, "Any person knowingly or wilfully violating any provision of this part or any rule, regulation, requirement or order thereunder \* \* \* may be subject to a fine, and each day of such violation shall constitute a separate offense."

Section 224, referred to above in Section 204 (a) (3), requires the display of suitable identification plates "by motor carriers upon each motor vehicle operated \* \* \* ." Plates are provided by the Commission.

President Roosevelt's railroad message to Congress carried with it a report prepared by a special committee under the chairmanship of Chairman Splawn of the I. C. C. At a meeting incident to the preparation of this report, a railroad representative recommended enactment of two amendments to the Motor Carrier Act. His first amendment would provide that any manufacturer or dealer making a charge *directly* or *indirectly* for transportation incidental to the delivery of goods should be deemed a for-hire carrier and subject to the provisions of the Act. His second amendment would have incorporated a "commodities clause" into the Act, similar to that now contained in the Interstate Commerce Act, prohibiting any carrier transporting any article or commodity manufactured or produced by him.

Both of these suggestions are being given serious consideration by



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COMMERCIAL CAR JOURNAL  
JUNE, 1938

forces of legislative strength, nationally as well as in some states.

In recommendations to the President which were submitted to Congress with the Executive message on railroads, Mr. J. J. Pelley, representing all railroads, strongly recommended the following:

(a) Discontinuance of Federal expenditures for the improvement of highway transportation.

(b) That highway carriers shall pay for the use of the highways a sum that would represent a fair rate upon the amount of government expenditures for the improvement of highways. (This would be a tax on the amounts spent out of highway user taxes now being paid.)

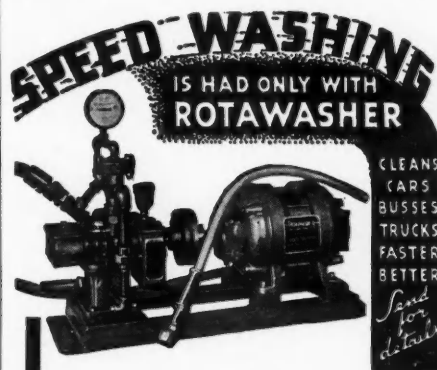
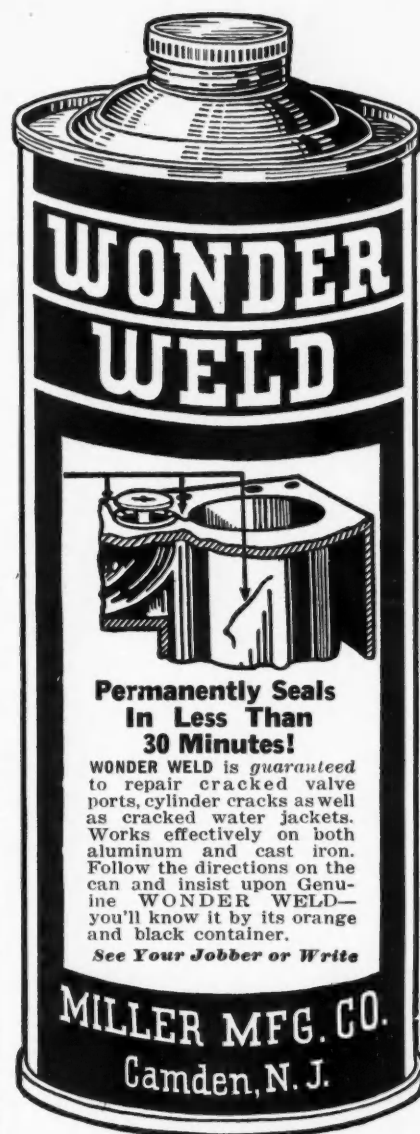
(c) The application to all competing forms of transportation of the same *quantity* and quality of regulation.

In these trying times, there is a growing trend towards regulating anyone whose occupation may be even remotely competitive. We are trying to lift ourselves into prosperity through the medium of legislating against our neighbor. In so far as such regulation may be applied to the private carrier, two outstanding thoughts appear to have been forgotten.

First, the private carrier is not in the transportation business. His truck operations are purely incidental to his regular occupation. Any regulation of the private carrier as such merely adds a new regulatory burden to the private business of the firm or individual.

Second, private carriers are primarily shippers. They perform only a small part of their own transportation service. These shipper-owners, large and small, supply a vast bulk of the tonnage now carried by railroads and other established transportation agencies. Whenever common carrier interests are successful in imposing added regulatory or tax burdens upon shipper-owners, they are imposing those burdens upon their best customers.

Furthermore, if the private carrier is to be forced into the field of regulated transportation, it should be remembered by the proponents of this legislation that he would have certain inherent "Grandfather" rights. Such legislation might result in forcing the private carrier into definite and open competition with established carrier agencies.



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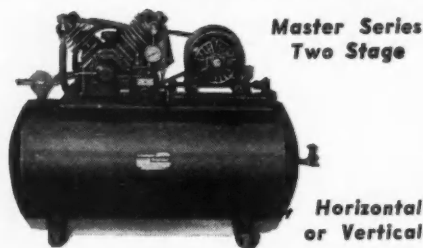
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## Carriers Organize

(CONTINUED FROM PAGE 30)

carriers.

Because of this fruitless effort, Mr. Gray said, the Conference recreated the special committee, again under the chairmanship of R. J. O'Hare, of the International Association of Milk Dealers. Other members of the committee were C. E. Blaine, National Livestock Association; C. S. Lee, American Petroleum Industries Committee; A. W. Gilliam, Meat Packers, and R. C. Hibben, International Association of Ice Cream Manufacturers.

It was the unanimous conclusion of this committee that:

1. There is a serious need for intensive representation and organization of private carriers, both from a national and state standpoint.
2. Existing efforts toward protecting the private carrier are inadequate to meet the increasing number of threats to motor carriers of this type.
3. Unless prompt action is taken in defense of the private carrier, conditions are certain to become worse.
4. The best interests of the private carrier now require a separate and wholly independent organization representative of all private carrier groups.

These conclusions, together with the committee's suggested plan of organization, were presented to the meeting by Mr. O'Hare. The committee, he said, recognized that the formation of a separate private carrier association presented a tremendous task in the matter of securing group and individual memberships. It felt, however, that these difficulties, as well as the heavy cost of initial financing, could be overcome by the formation of an organization which, at least in the early stages, might be set up along lines similar to those of the National Highway Users Conference and the American Petroleum Industries Committee. Such an organization might be known as the National Private Motor Carriers' Committee, or Conference, or by a similar title, with a central office in Washington in charge of an able, secretary, manager or director. It would be affiliated with the National Highway Users Conference.

In accordance with this reasoning, the committee suggested a setup along the following lines:

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**ZONE CONTROL**

1. A central organization composed of representatives of each national trade association and farm organization whose members operate as private carriers.

2. This organization—committee or conference—should be a voluntary organization with the proper officers, advisory committee and board, with the necessary working committees, acting from a voluntary standpoint with only a hired Washington representative to take charge of the office; legal talent to be engaged as needed.

3. The work of the Washington office would include:

(a) Presentations before the Interstate Commerce Commission.

(b) Looking after national legislation affecting private carriers.

(c) Working with the National Highway Users Conference in gathering information and consultation with Conference committees and officials on private carrier problems.

(d) Cooperation with the American Trucking Associations, Inc., on matters common to both private and for-hire carriers.

(e) Collection and dissemination of information to members and to private carriers generally.

4. Organization in each state of a similar state private carrier set-up to be undertaken, these state organizations to work along the following lines:

(a) Cooperate with the State Highway Users Conference.

(b) Cooperate with state truck associations on problems common to both private and for-hire carriers.

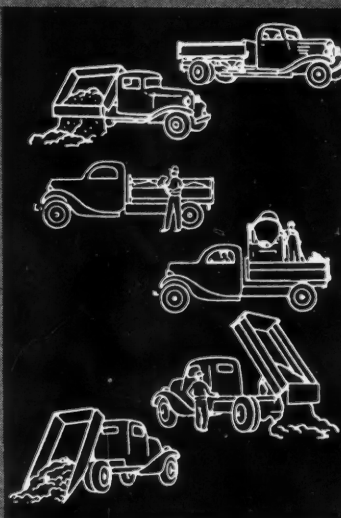
(c) The state organization to start as a voluntary organization with no paid representatives but to include the state groups whose members operate as private carriers and belong to national trade associations and farm organizations.

(d) State groups, as strengthened and perfected, to work directly with the national office.

(e) State groups, ultimately, to develop into state private carrier associations, each with a paid secretary competent to present the cause of the private carriers to legislatures and state regulatory bureaus, boards and commissions.

5. A canvass to be made for the purpose of ascertaining the number

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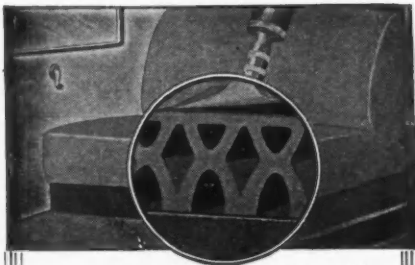
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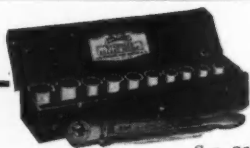
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of private carrier groups that will join in the establishment of the national office and the extent to which they would be willing to contribute to the fund necessary to finance the Washington office and the necessary work.

Discussion of these proposals from the floor was requested by Mr. Hibben, who had been chosen permanent chairman of the meeting. All who responded agreed with the committee's opinion that conditions threatening private carriers were becoming more alarming daily and that the establishment of a unified front was imperative. It was agreed also that organization should proceed along lines which would be least expensive.

The meeting then approved the suggestions of the O'Hare committee and a motion by Mr. O'Hare that Mr. Hibben appoint a committee to organize existing associations and private carriers into a national private carrier group with state affiliation.

Trade associations represented at the meeting were:

National Sand & Gravel Association.

National Lumber Manufacturers Association.

National Coal Association.

International Association of Milk Dealers.

The American Dry Milk Institute.

International Association of Ice Cream Manufacturers.

National Industrial Traffic League.

Mail Order Associations.

American Petroleum Industries Committee.

American Bakers Association.

Retailers' National Council.

National League of Fruit & Vegetable Distributors.

United Fresh Fruit & Vegetable Association.

Other organizations represented were:

American Trucking Assn., Inc.

N. Y. State Motor Truck Assn.

Private Truck Owners of Indiana.

Automobile Manufacturers Assn.

Pennsylvania Motor Truck Assn.

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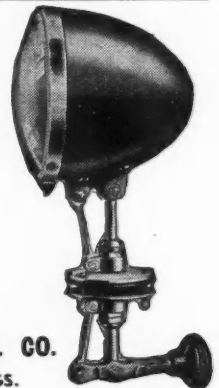
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### March Truck Loadings Off

Movement of freight by motor truck in March was 30.39 per cent under the volume reported for the corresponding month last year, according to loading figures compiled and issued by the American Trucking Associations, Inc. The March figures represented an increase of 8.21 per cent over February tonnage, accounted for, in part, by the fact that March had four more working days than February.

### Bleezarde Sells Used Trucks

"Warren E. Bleezarde, formerly with White as used truck manager, has established himself in the used truck business at 410-12 East 19th St., New York.

### Exide's 50th Anniversary

The Electric Storage Battery Co. has begun observance of its golden anniversary year. Now the largest manufacturer of storage batteries, the company was founded in June, 1888 near Gloucester, N. J.

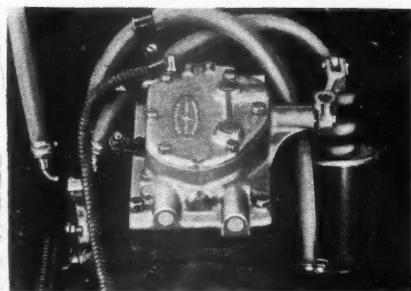
### Pylac Speeds Washing

A new detergent which, it is claimed, cuts in half the time and labor required to wash a vehicle, has been announced by Pylac Products, Inc. Pylac is a clear green liquid which, when properly mixed with water, removes all traffic film grease and "chalked" pigment, leaving the finish impervious to rain-spotting for several days after the washing. Other features are that no chamoising is needed to prevent spotting or streaking; it does not injure wax polishes. The new detergent is neutral in action and contains no acid, alkali or abrasive material. Even when concentrated it will not injure the skin, lacquer, enamel finishes or unpainted metal.

### Houde Gear Shifter

The Houde Engineering Corp. has announced a pre-selective gear shifting mechanism known as the Houdaille Gear-Master. The lever operates through the regular "H" motion and can be shifted without removing the hand from the steering wheel. Shifting can be done either before or while the clutch is disengaged.

The unit consists of the selector lever



located on the steering column just beneath the steering wheel, the selector mechanism which replaced the transmission cover plate, a steam-engine-type of sliding and self lubricating valve near the transmission and actuated by the clutch and the vacuum power cylinder. Where remote control is necessary sheathed airplane type control cable is used.

COMMERCIAL CAR JOURNAL  
JUNE, 1938

### Toll Roads to Be Checked

A new section 15 of the Cartwright Federal Aid Bill, which passed the Senate May 16, directs the chief of the Bureau of Public Roads to investigate the feasibility of building and the cost of a super-toll highway system (not exceeding three running east and west and three running north and south) and requires him to report his findings to Congress not later than Feb. 1, 1939

### Indiana Weight Law Hit

The Indiana truck weight tax has been held unconstitutional by Marion County Superior Court Judge Joseph T. Markey. Ruling in the case of Kenneth G. Foster, a

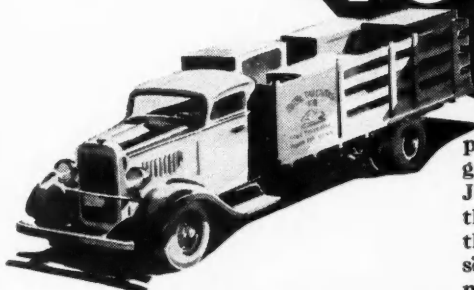
truck owner who sued for a permanent injunction against the State, Judge Markey said:

"The plaintiff proved conclusively in the mind of the court that the taxes assessed on the size of the tires are much greater than is reasonably necessary and that such license fees are an unreasonable burden."

### Age of Farm Cars & Trucks

One in every six farm cars is ten years old or over according to the indications of a survey just made by the Federal Census. More than half older than 1933. Farm figures for trucks and tractors convey an even more striking picture of obsolescence, with one-fourth 10 years old.

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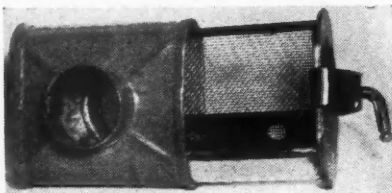
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